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COUNTY AGENT VO-AG TEACHER

THE LEADING MAGAZINE FOR AGRICULTURAL LEADERS AND ADVISORS

17/2

**NEW APPROACHES
IN INSECT CONTROL**

1961 HERBICIDE REPORT

Joseph Weeks
Administrative Officer
U. S. Dept. of Agriculture
Washington 25, D. C. USDA

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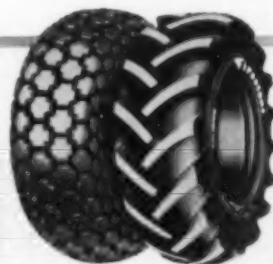


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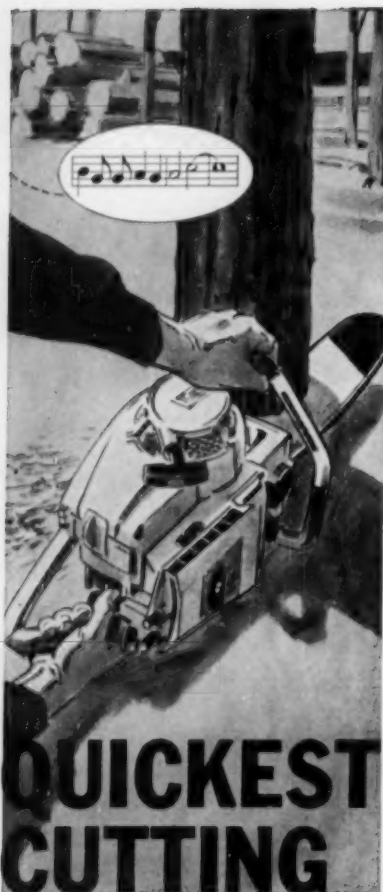


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COUNTY AGENT VO-AG TEACHER

FEBRUARY 1961

Vol. 17 No. 2

THE LEADING MAGAZINE FOR AGRICULTURAL LEADERS

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Publication Audit



COUNTY AGENT AND VO-AG TEACHER

FARM-MADE CEMENT MIXER SAVES TIME & HARD WORK



Lloyd Stauffer, whose farm is near Greene, Iowa, needed a very small cement mixer for pointing up concrete around the barn. So, he built the one shown here. His materials consisted of an old Texaco Universal Gear Lubricant drum, pipe and angle iron for the frame, and bearings from a junk pile. Aside from the ¼-horsepower motor, the whole job cost less than \$5.

To lubricate their cement mixer and other equipment, Lloyd (left), and his father, Vic, use Texaco Products supplied by Texaco Distributor Darrell Davis (right). These progressive farmers prefer Marfak lubricant. They know that Marfak forms a tough collar around open bearings. It won't drip out, wash out, dry out or cake up.

The motorized field equipment used by this father-and-son combination includes two tractors and a truck. The Stauffers have used Texaco Products for more than five years. They know *it pays to farm with Texaco Products.*



FIRE CHIEF FOR HIM!

H. Lee Cherry (right) farms 350 acres in the rich tobacco area near Washington, North Carolina. Here he is getting a delivery of Texaco Fire Chief gasoline from Texaco Distributor H. G. Winfield. Lee prefers Fire Chief because it delivers superior fire-power and draw-bar pull for low-cost operation. The reason is that economical Fire Chief is Climate-Controlled

for altitude and seasonal temperatures. He, too, knows that *it pays to farm with Texaco Products.*



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AN ANGUS IN YOUR FUTURE

Designed to help farm youngsters in the selection, feeding, fitting and showing of an Angus heifer, "An Angus in Your Future" is a 16 mm full-color, sound film which runs 21 minutes.

American Angus Association reports the film is available on a first-come, first-served basis to adult and farm youth groups throughout the U. S.

Filmed in many areas of the land, scenes show the most important features of correct conformation, highlights of a sound feeding program, the most widely used methods of fitting and the fundamentals of exhibiting heifers to their best advantage in the showing.

To reserve the film, write Public Relations Department, American Angus Association, 3201 Frederick Blvd., St. Joseph, Mo.

THE PROFIT PULLET STORY

How today's greatest egg laying machine is developed is described in "The Profit Pullet Story," a 16-mm, 20-minute color movie from DeKalb Agricultural Association, Inc.

The story revolves around the precision breeding techniques employed by scientists at DeKalb to give modern poultrymen more profitable layers.

When requesting the movie, include alternate showing dates. Loan period is one week. Address requests to Educational Department, DeKalb Agricultural Association, Inc., DeKalb, Illinois.

SHEEP IN AMERICA

The lamb stars in a new free 16mm-sound film about two essentials of life—food and fabric.

Breeding and raising of "Sheep in America" is explained in 12 minutes of informative film fare. Modern, scientific methods of caring for sheep are depicted in scenes which show how much progress has been made in this industry during recent years.

The film was produced for the American Sheep Producers Council, Inc., by Hughes Film Studio. Prints may be obtained from Modern Talking Picture Service, 3 East 54th Street, New York 22, N. Y.

DAIRY FEEDING FILM

The Mechanization of Feeding Dairy Cows in Stanchions is a new film from the University of Vermont. It's a 16 mm sound and color film, running in two parts. Part I is 13 minutes and Part II, 6 minutes, 10 seconds.

This film sums up the results of research on a semi-automatic feeding system for dairy cows in stanchion and also details a silage metering device.

COUNTY AGENT AND VO-AG TEACHER

"there's many a slip 'twixt the cup and the lip!"

Just as this old proverb implies — there's a world of difference between simply putting legume inoculant on seed and *actually getting* extra yield, quality and soil-building benefits from a legume crop.

No one knows this better than we do here at Nitragin. For over 60 years we've worked to develop better and easier ways of inoculating legumes — preinoculation, custom inoculation and easier on-the-farm methods. But, our primary concern has always been to make more and more certain that nodule bacteria do the job they're intended to do *IN THE FARMER'S FIELD*. We refuse to market any product or make any recommendation that might jeopardize our reputation for producing the highest quality inoculant available. That's why we conduct the most extensive research and testing program in the inoculant industry.



Shown above is a portion of the soybean section of Nitragin's test plots. Recording data are Richard Curley, company agronomist, and Dr. J. C. Burton, Nitragin's Director of Research, widely recognized authority on inoculant bacteria.



Most inoculant producer's tests are incomplete — they rely only on lab or greenhouse tests. However, our experience proves that new inoculant ideas that work in the lab or greenhouse often **FAIL** in the field. So, we refuse to stop short in our research — we use laboratory and greenhouse tests **PLUS** thorough and complete field tests. Furthermore, we use the accepted and prevailing procedures of research in the field of bacteriology. We don't cut corners or lower standards in an effort to justify inferior products or processes.

As a result of this extensive research program . . . Only **NITRAGIN GUARANTEES** the live bacteria content of every package . . . Only **NITRAGIN** uses an extremely fine and costly peat carrier to keep bacteria alive and insure better seed coverage . . . Only **NITRAGIN** offers a preinoculation process that **SEALS** the live bacteria to the seed, **NOURISHES** them to keep them alive . . . Only **NITRAGIN** offers Nitra-Coat to stick inoculant to seed and prolong bacterial life for successful custom or on-farm inoculation well ahead of planting.

You can have full confidence when you recommend Nitragin products to the farmer who considers quality and effectiveness important.

LOOK FOR THESE PROVED NITRAGIN PRODUCTS

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Leading seed processors and wholesalers use the **VICOAT** process to preinoculate alfalfa and clover seed. Seals on, protects and nourishes the bacteria for maximum nodulation. You can **SEE** it on the seed.



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Write for free Nitrogen Cycle Chart and list of other educational materials.

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HERE'S PROOF...

Both plants came from the same field. *Just one difference*—the plant on the right with the vigorous root system grew in aldrin-treated soil.

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STANDS FOR BIGGER YIELDS

Poor corn stands, lodging, downgrading, poor yields, caused by soil insect damage are fast becoming a thing of the past. More growers than ever before are controlling soil insects with aldrin.

Aldrin knocks out rootworms, wireworms, white grubs, seed corn maggots and other destructive soil pests on corn. It's easy to use. Apply it as a spray or as granules. Or mix it with fertilizer and

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Take the disappointment out of harvest time. Insure bigger, better quality corn yields by controlling soil insects with low-cost aldrin. Aldrin is available under well-known brand names from your insecticide dealer. Order your supply today.

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AGRICULTURAL CHEMICALS DIVISION
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MOVING DAY

for County Agent & Vo-Ag Teacher

IT is with a good deal of enthusiasm that we announce that COUNTY AGENT & VO-AG TEACHER has moved from Philadelphia to Willoughby, Ohio. Gordon L. Berg, who has done such a fine job as editor, will continue to lead COUNTY AGENT & VO-AG TEACHER, which has now joined the American Fruit Grower Publishing Company. Thus, COUNTY AGENT joins a farm publishing group consisting of AMERICAN FRUIT GROWER, AMERICAN VEGETABLE GROWER, FARM CHEMICALS, and FARM CHEMICALS HANDBOOK.

The object of the change is to strengthen COUNTY AGENT's outstanding record of service and leadership to the leaders in the farm field. Vast changes are taking place in agriculture, and it is our aim to make sure COUNTY AGENT & VO-AG TEACHER continues to devote its full efforts to the agricultural leader field and continues to fight with all the resources it can command for the ag leader programs which have made this country's agriculture without parallel in the history of the world.

As the new publishers, we do not intend to let the grass grow under our feet. In the months ahead, you will see improved efforts to publish practical, authoritative stories and illustrations to make COUNTY AGENT & VO-AG TEACHER even more helpful to you.

Gordon Berg will spearhead the editorial program and will lead an aggressive editorial policy outlined each month with "In Summing Up" on the last editorial page.

COUNTY AGENT & VO-AG TEACHER has a shining record of progress since the first issue made its appearance 16 years ago. It is the leading magazine in its field, and to our readers and advertisers who made this record possible, we

pledge our best efforts in the coming years.

Rod Zilenziger has been appointed Eastern Advertising Manager in an expanded New York office. Al Zilenziger will head the enlarged Chicago office as Midwestern Advertising Manager. These two offices, in addition, will handle AMERICAN FRUIT GROWER, AMERICAN VEGETABLE GROWER, and FARM CHEMICALS and FARM CHEMICALS HANDBOOK.

A word about your new publishers. President Edward L. Meister, Jr., graduated from Yale University and with over 20 years experience in farm publishing, is a recognized leader in agriculture publishing. Richard Meister, vice-president and general manager, graduated from the College of Agriculture at Cornell University and the Harvard Business School, and has guided the highly successful editorial policies of AMERICAN FRUIT GROWER and AMERICAN VEGETABLE GROWER.

AMERICAN FRUIT GROWER is one of the nation's oldest farm publications, published since 1880. It is a magazine for the commercial fruit industry, with a circulation of 130,000. AMERICAN VEGETABLE GROWER is the leading magazine for commercial vegetable growers and packers, with a national circulation of 60,000. FARM CHEMICALS is the pioneer journal of the fertilizer and pesticide industry, with a distribution of over 10,000 nationally.

As in the past, it will be the aim of COUNTY AGENT & VO-AG TEACHER to speak fearlessly without bias on all questions affecting the welfare of the ag leader field. We solicit your advice and comment and hope you will let us have your questions and problems. By working together we will move forward together.



PUBLISHER

ag leaders speak up

ARTICLE USED FOR TRAINING

The Farm Electrification Council of New Jersey is holding an all-day training session for the county agents on January 11th. Among the topics discussed will be choice and care of motors.

In this connection we would like very much to give them a mimeographed copy of J. R. Hamilton's feature story in your December issue. I realize that each county office has already received this issue of your book, but we want to emphasize the importance of this subject by giving them a mimeographed release for subject matter filing and reference.

W. C. KRUEGER
Extension specialist in
Agricultural Engineering
Rutgers, The State University
New Brunswick, N. J.

Permission granted, "Kruog."—Ed.

ARTICLES HELP DIRECTOR

I read all issues of your publication and many articles have proved to be of great value to me.

JAMES F. GALLANT
Director
Essex County Ag. School
Hathorne, Mass.

COMMENTS ABOUT DECEMBER

I am receiving many fine comments on the . . . article in the December issue of your magazine on "Upping Enrollment in Ohio" from across the nation.

To date I have received requests for further information from North Carolina, Texas, Wisconsin, and two from Kansas.

H. C. HORSTMAN
Vo-Ag Instructor
Anna, Ohio

AGENT TO "REVIEW" PROGRAM

It was good to scan through your December issue and to read your remarks "In Summing Up" the NACAA meeting in Miami. I appreciate very much the thoughts expressed. They even prompted me to make a sober review of my own reports and plan of work.

Sorry I couldn't make it to the annual meeting and renew acquaintances with you fellows who keep your eyes focused on the trends in agriculture.

EDGAR C. REIF
County Extension Agent
Yakima, Wash.

THAT NOVEMBER EDITORIAL

Please send me the address of Wildrick & Miller in New York. Their booklet on opportunities in Agribusiness sounds most interesting. Perhaps this can supplement some of the material we use with our Youth.

Congratulations on your November and December issues. Both have several very useful articles. Keep up the good work.

V. L. CAROTHERS
County Extension Agent
St. Joseph, Missouri

I have just read with interest your editorial which appeared in the November issue of COUNTY AGENT & VO-AG TEACHER. I would be interested in finding out where I might obtain a copy of the booklet published by Wildrick & Miller which you mention. Would you please give me the title of the booklet and the address of the company?

HARVEY M. HUTCHINGS
Dept. of Ag. Economics
Oregon State College
Corvallis, Oregon

In the November 1960 issue of COUNTY AGENT AND VO-AG TEACHER you make reference to the advertising agency of Wildrick and Miller, New York. Could you furnish us with the address of this advertising agency? We are interested in obtaining a copy of the booklet published by this agency which you indicate glamorizes agribusiness.

FRANCIS B. MCCORMICK
Dept. of Ag. Econ. & Rural Soc.
Ohio State University
Columbus, Ohio

Please send me a copy of the booklet used in college freshman orientation courses by Wildrick and Miller in New York. You referred to this publication in your editorial page of the November issue.

JAMES W. OXLEY
Assistant Dean and Director
College of Agriculture
The University of Wyoming
Laramie, Wyo.

It is very interesting to me that you have found it important to consider agriculture from the broad standard of agribusiness or as we have termed it agindustry.

I was very much interested in your November editorial. While it often may seem on the surface that things we say or do in connection with young people are not registering, yet it

is rather amazing to find that in many instances one makes a greater impression through such activities as yours than is realized at the onset. At any rate it is necessary to keep on carrying the message of the broad opportunities in the agindustry fields to young people.

I read with a great deal of interest your magazine's presentation of "Revamping Vocational Agriculture for the Space Age." This is an important consideration.

LYMAN E. JACKSON
Dean
College of Agriculture
Pennsylvania State University
University Park, Pa.

You mentioned a booklet published by an advertising agency (Wildrick and Miller) in the November editorial. May I have the name of the publication and the address of Wildrick and Miller. I may be able to use the booklet in some of the guidance work assigned me.

DOYLE E. BEYL
Supervisor
Vocational Agriculture
State of Wisconsin
Madison, Wis.

Your editorial in the November issue was very interesting. Since I have been asked to counsel with high school seniors, it was very appropriate.

T. R. HOBART
Assistant Manager
The U. S. National Bank
of Portland, Oregon
Salem, Oregon

Your editorial in the November issue of COUNTY AGENT & VO-AG TEACHER was referred to me for comment . . . Your comments about students rushing out after class time on a home coming weekend and failing to evidence great interest in the subject of agricultural businesses, warrants some comments, I believe.

As a father of a freshman in a large university, I am impressed not with the time-wasting of students but with the amount of "hard digging" which is required to pass courses at the level presently taught. If anyone thinks that college education has not become "tougher" with the years, it is because few people writing on the subject are presently taking courses in a typical top-notch university.

For example, twenty years ago the complexities of the Krebs cycle having to do with cell metabolism were discussed in courses in biochemistry taken mainly by graduate students. At present they are evidently taught to freshmen in the beginning course in zoology. This could be elaborated on indefinitely. I frequently drive by the men's dormitories at night and find them lit up like a Christmas celebration at 1:00 a.m. and even at 2:00 a.m. This does not indicate students are taking their educational responsibilities lightly; in fact, one of our greatest problems is loss of sleep among students. Many students work part-time and others find course work very difficult. Many students are not rapid readers and others find their high school and grade school training was highly inadequate, particularly in grammar and reading.

You do not indicate at what hour your talk was given. I can assure you that on a campus the size of ours, students must not only rush out of the classroom but walk at a mighty brisk rate or even trot in order to get to the next class within the ten minutes allotted.

Last week I had the opportunity of meeting with a journalism class of forty students and I can assure that the acuteness of their minds on a topic of great contemporary interest was a marvel to experience. I was "interviewed" and quizzed by these budding reporters without an opportunity to catch my breath or cogitate on the matter.

COUNTY AGENT AND VO-AG TEACHER

On the other hand, you are quite correct that students do not spend a great deal of their time worrying about their future career. When we have career conferences, the attendance is small. Such a high percentage of our graduating seniors must go into the military service, they figure that in six months or in two years they will have adequate time to consider their future. This, of course, is wrong. They should take every opportunity to learn about the jobs available and the training required to properly prepare them for their life work.

A recent survey, the results of which are just coming in, made on all of our eight thousand agricultural alumni indicates, without question, that these alumni feel students should have more business training, more work in marketing and salesmanship, journalism and writing. They see the inadequacies of their own capabilities and hope for the coming generations of students that this will not be the case with them.

If we can only put over this idea, we will be even prouder of the accomplishments of our alumni and present indications are that we have no reason to be ashamed if position and salary are any indices.

KARL E. GARDNER
Associate Dean
College of Agriculture
University of Illinois
Urbana, Ill.

Your optimistic remarks about today's ag students are well taken. I must say, however, that the students listening to me "expound" on Opportunities had ample time to seek further information. The class was held about 45 minutes before lunch and "broke off" a few minutes early for "questions" as I recall. As I indicated in my editorial, there were two chaps who didn't seem to mind being late to lunch. I also want to add that the class I conducted for journalism students later that day was a complete success, with a steady "bombardment" of questions.—EDITOR.

TO HARMS' DEFENSE, ET CETERA

The main reason for the letter is to answer some misleading or false material that was presented in the December issue... the article that the Kroger man wrote. I feel that he is just trying to save his job. Independent packers and grocers can tell you that the Chain Stores are starting to hurt the farmers because they are too big and are monopolizing the market. We must have fair competition. Mr. John Harms was entirely right but was not strong enough in his statements. I think it is time for the facts. After all, what other industry is more efficient with 60% of the population engaged in Agri-Business.

The other point in your December issue was the misleading article on "Who Reaches the Farmer Most Effectively?" I don't know where these gentlemen from Ohio took their survey, but it must be the only county in the mid-west that the County Agent visits and helps more farmers than the ag teachers in the area.

I think it is high time a leading farm magazine check its facts before printing such an article. In most counties in the state of Indiana the county agent only visits the 10% that helps him keep his job. We have 92 farmers in the township and 80 of them are in my Adult Farmer Program... I visit each of them. Please get the facts.

A VO-AG TEACHER

For the sake of harmony within the area covered by this teacher, we are not disclosing this teacher's name, although he did not request same. This magazine assumes that those who write letters of this (or any other) type intend that they be published unless stated otherwise. We also feel that airing one's views (if sound) is "good for the soul" as well as for the professions.—EDITOR.

CHAIN STORES

—too little or too much COMPETITION?

EDITOR'S NOTE: Continuing the lively controversy started by John Harms' "Are Chain Stores Part of the Farm Problem?" in last July's issue, Mr. Peterson wrote the following for publication. We would be happy to have more contributions to this important subject. So "Speak Up"!

By ARTHUR W. PETERSON

I have just read your article "Washington Today," in the July issue of COUNTY AGENT & VO-AG TEACHER magazine. This article contains some factual material and some interesting interpretations of these facts. Much of your interpretation appears logical and sound to me.

I would like to raise a question about that part of your article which implies that the change in the farmer's share of the dollar since 1943 to the present time, may be due to the organization of large chains. It seems more probable to me that without the organization of the large chains and an increase in efficiency of marketing foods, especially at the retail level, we would have had a greater increase in the retail price and a possibly greater spread in the marketing margin. My reason for suggesting this is that wage rates have risen considerably faster than the marketing margin based upon USDA data. If all of the increase in wage rates had been reflected into consumer prices, or if it had been taken out of the farmer's share, these two price series would have been wider apart.

FARM PRICES FALLING

Are you aware of the fact that the general level of farm prices has been falling since the Korean war, both in the United States and on a world basis? Have you looked at the Reuters Index of Raw Materials recently? You will find that prices of basic commodities, including farm commodities, have been falling on a world basis as well as in the United States. Would you say that this is due to our chain stores? It is also true that other raw materials, other than farm commodities, have been weak since the close of the Korean war. One of the alternatives that you ought to explore is the possibility that something is causing a weakness in raw material prices after the influences of World War II and the Korean war, which were inflationary, became a matter of history.

Most agricultural economists tend to

view the present situation as an inflationary period. This is because they look at consumer prices, but have not kept their eyes on raw material prices. It is possible that consumer prices have been rising because of a strong position of labor and a continuing wage rate increase. This wage rate increase has been more than enough to offset the decrease in farm prices and the increase in efficiency of marketing firms.

DO FEW BUYERS SHAVE PRICE?

You state "When there are fewer first buyers for farm commodities, competition is reduced and prices are shaved." Do you know of any careful study which shows this to be true? Is it possible that we keep repeating these things until we think they are true? For example, the automobile companies are large, but would you say that they are not competitive? Would you say that they are not competitive among themselves and that, in addition, they are not competitive with imported cars? If it is true that the limiting of the number of buyers or sellers in a particular market decreases competition, is this relationship curvilinear, or is it more likely to be true that when you have only two independent firms you have the possibility of a great deal of competition? In addition, is it also true that there is interproduce competition so that even one firm does not have a complete monopoly? Personally, I would like to see this question of number of buyers and number of sellers brought out of the realm of the theory and statements, and tested with empirical data and evidence. To date, most of these statements are based upon repetition of a statement from one person to another. I think it is about time that some of them were tested and that we should be more careful as we quote them because material which you put in print will be assumed by many readers to be factual just because it is printed.

Arthur W. Peterson is State Leader, Extension Marketing, Washington State University, Pullman, Wash.



ag leaders Washington

By JOHN HARMS

MOST IMPORTANT thing to keep in mind when advising farmers about programs concerning 1961 farm production: There will be no radical change in federal farm programs this year. And they can bank on that.

Neither President-elect Kennedy nor his Agriculture Secretary, Orville Freeman, wants to do any boat-rocking in the first year at least. You would be surprised to learn how cautiously they are approaching the farm problem. They are actually backing away from the tight controls — "supply management" — which Mr. Kennedy talked about early in the campaign. Most politicians, when faced with a control job, shy away from it — political dynamite. And the new leaders in Washington are no different.

Secretary Freeman is well-grounded in farm problems, although not a farm boy himself, and speaks of a sincere desire to help solve them. He also is a believer in tight controls — but he is not really convinced that they are necessary. So — he will go along with Mr. Kennedy and try to solve farm problems in other ways.

Here's the way things shape up for 1961 as Freeman begins to take over from Secretary Benson — bearing in mind that everything hasn't been settled yet, so changes in the following may be made in the weeks ahead:

PRICE SUPPORTS. Freeman's inclination is to raise all supports above last year's levels — but we don't think he can find enough reasons to do it across-the-board. As of now, the thinking is that dairy supports would be raised for the season beginning April 1, along with soybeans, and perhaps rice and peanuts. The wool incentive payment also is a good candidate for a raise. In each case, however, the increase will be small. For example, don't expect anything more than a 5c-per-hundred increase for factory milk, or a couple pennies boost in soybeans.

Most price support levels can be increased by the Secretary without approval of Congress. The Democrats have been hounding Benson for not using all the laws available to increase farm income — and now they are on the spot and feel compelled to follow through.

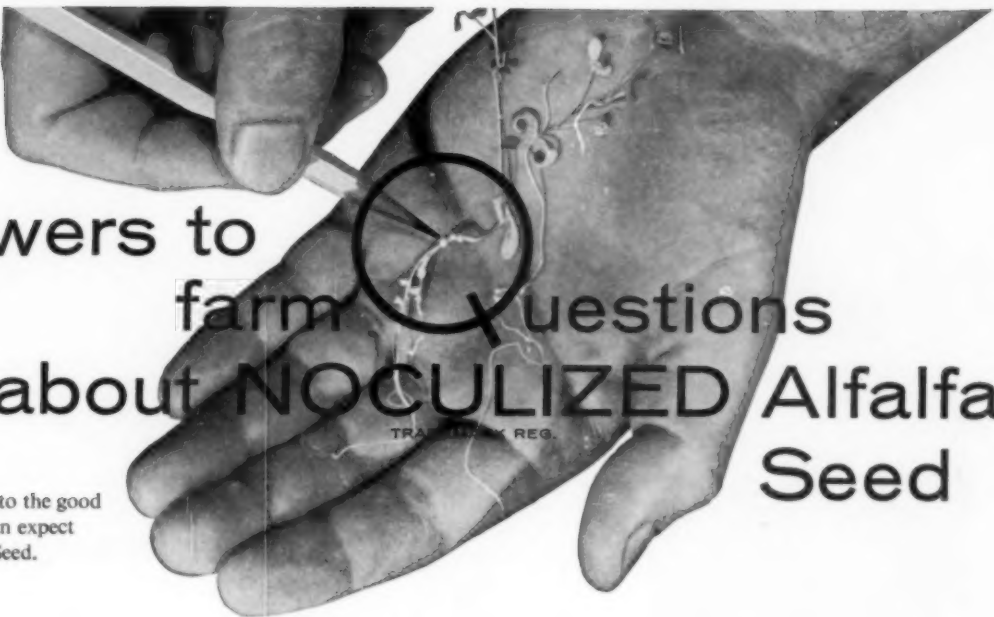
PRODUCTION CONTROLS. We've learned that Freeman will not get tough on production this year. He has broad authority to tighten up on controls, but is expected to use this sparingly. Cross-compliance, which would require farmers to comply with controls on all crops they grow in order to be eligible for support, government payments, or help of any kind, is not expected to be imposed in 1961. We are not predicting this now, but want to take another look at Freeman before we can say for sure.

WHEAT. The new USDA leadership plans to go to Congress for a new wheat plan, but it hasn't quite made up its mind just what it wants. In view of this uncertainty, farmers should be alerted to expect a change on the 1962 crop and to get to thinking about some acreage reduction. Whatever the new program turns out to be, however, it won't go into effect without a referendum of farmers, and their two-thirds approval.

FEED GRAINS. There's lots of talk about trying to get a new feed grain program through Congress this spring, but as of now we doubt that it can be done — although we've been wrong in the past. If nothing is done, there may be some action taken by the USDA to encourage farmers to hold down production voluntarily. This could be through a re-opening of the conservation reserve, higher Agricultural Conservation Program (ACP) payments, or any number of things. This should be watched closely.

CONSERVATION. The new Administration is for it, and will try to provide strong leadership. But, here again, no definite decisions have been made. More ACP money is sure to be sought, a step-up in the small watersheds program, and increased technical assistance to farmers — all are in the wind. The new Interior Secretary, Stuart Udall, is a strong believer in flood control, de-salting of water, and development of the Southwest water supplies to attract industry there. So . . . if you're interested in those things, he's the boy to watch. Actually, Udall showed more interest in education

(Please turn to page 44)



Answers to farm questions about NOCULIZED Alfalfa Seed

The pencil points to the good nodulation you can expect with NOCULIZED Seed.

Your farmers will be checking with you the latest information about NOCULIZED Seed. Following is the very latest information available about this revolutionary new development.

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NOCULIZED Seed is top quality alfalfa seed which has been vacuum-impregnated with selected strains of bacteria that stay effective for months. The seed is already inoculated and ready to plant from the bag. No further inoculation is needed prior to expiration date on each bag.

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Should ag leaders receive

a **BONUS?**

A new dimension for ag leader work? Sure, it can and should be done, say an industry leader and an extension field studies expert. On page 16 D. M. Hall of Iowa shows you how a bonus can be figured. Be sure to read all the pros and cons on this subject of merit increases for achievements.

By ROBERT Q. PARKS

Suppose we could develop a system whereby the more money the farmers in a county make, the more money the county agent makes—more or less, an incentive bonus system?

Suppose in addition to his salary, the county agent receives a bonus. The bigger the increase in farm income in his county, the bigger the bonus.

Don't you think that under such a system, we would move in the direction of making the future of agriculture a more profitable one?

I hope I have conveyed to you my belief that it is the opportunity, the duty, and the responsibility of the fertilizer industry to sell more adequate amounts of the fertilizers that are needed.

Additionally, the fertilizer industry has a responsibility to the research and extension agencies whose results and efforts are needed, to make the farmer's use of fertilizer most profitable.

Here, I would like to cast a question-

ing eye on our associates in experiment station and extension work. Why is it, gentlemen, that you don't have better support for your programs from the fertilizer industry? It's not because you don't have a good story, because you do—the same story I've just been touting so highly. Then if we believe in your program—and we do—why isn't the fertilizer industry present en masse when the State Legislature considers your annual appropriation?

I am not saying that you have not recognized this problem, because you have. You have made a modest dignified effort to educate us, but you haven't sold us. In the diverse clamour of America today, such a modest approach won't sell a fountain pen, or an automobile, or a carload of fertilizer—or a research program.

To you gentlemen here in college and experiment station work, I would offer council identical to my advice to the fertilizer industry. If you have a good product, and you believe in it, it is your responsibility to the future of agriculture to get out and sell . . . it."

HOW TO MEASURE RESULTS

All right, suppose we set up a bonus system for county agents—and other ag

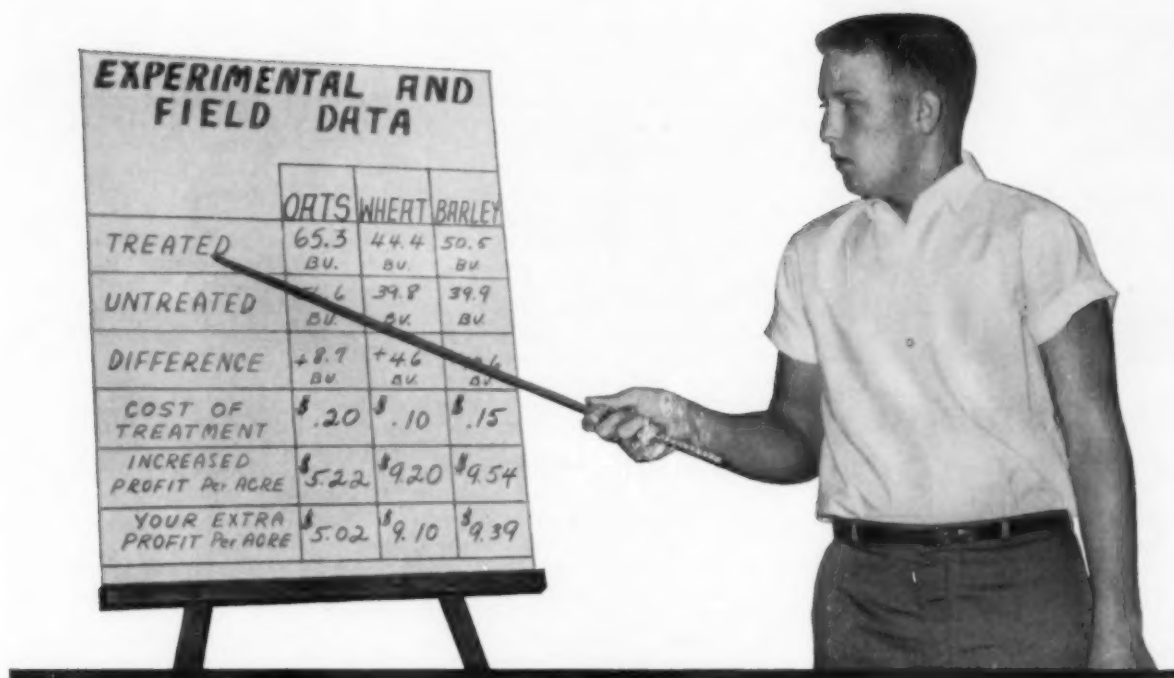
leaders, too! First, we have to know how to measure results. D. M. Hall, who is in charge of field studies for the University of Illinois College of Agriculture, sent us this "guide" to measuring results.—Editor

By D. M. HALL

Evaluation is an important step that is often ignored, but can never be avoided. You evaluate whenever you render a judgment. Whenever you say, "That's a good speech," or "What a lousy time," or "You shouldn't do that," or "That's a good question," you evaluate. There is no scarcity of value judgments; generally there are too many, too haphazard ones. Our real problem is not more, but more objective, evaluations.

Objective evaluation is applying research techniques to the problems that arise when we project a program to influence people. We gather facts, feelings, and value-judgments and use them to regulate our action programs. We seek answers to five questions: What is it? How do we feel about it? What shall we do about it? Who shall do it? and What were the results? We gather evidence and feed it back to the various groups in order to make adjustments

Dr. Robert Q. Parks, W. R. Grace Co., Baltimore, Md., presented these remarks in an address before the Southeast Fertilizer Conference in Atlanta, Georgia last year.



Increase farm income \$25,000 to \$300,000 per county with seed treatment

"Best way I know to put \$25,000 of extra spending money into my home county would be to treat all the small grain seed with a good seed treatment," says Danny Lamb, Swainsboro, Ga., winner of the 1960 Georgia Crop Improvement Project Award.

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before it is too late. The feed-back is in one respect like the mechanisms that guide missiles, making corrections that keep them on course. Since our problem is to determine what is happening in contrast to what did happen, we must expect our data to vary in degree of reliability and validity. The answer to the question, "What happened?" may be the opinion of a single person, several persons, or a representative sample of the population.

The benefits to be derived from evaluation have led some persons to recommend self-appraisals. They promise that "you will learn something" even though the data are poor, and they assure you that the results won't hurt if you do it yourself.

FAULTS OF SELF-APPRAISAL

Suppose I do attempt a self-appraisal and ask 12 persons, "How am I doing?" Suppose I get 12 answers. Should I count all 12, or were there some who didn't know me well enough? Did I unconsciously pick 12 whom I like and who probably wouldn't hurt my feelings by telling the truth? Did I choose a representative sample? Did I demonstrate my lack of bias by introducing complimentary statements, which I really didn't believe, merely to have them repeated? Objective appraisals must be conducted by outside persons experienced with the tools of research.

Occasionally someone objects to evaluation, stating, "We are too busy doing the work to worry about the results." But even in the thick of battle we find officers taking time from firing to determine where the shells are falling. Another person objects to "the difficulty

in changing," but no one can become any better unless he does change.

A third objects, saying, "I'm getting along all right." Probably an ostrich feels secure, too, when he can't see the dangers about him. A fourth objects, saying, "I don't like to be treated like a guinea pig." Can it be that she won't have her foot measured for shoes?

True, evaluation does limit a worker. So long as the quality of a piece of work has never been measured, so long as evaluation has been avoided, the worker is free. Evaluation of a program will restrict its planners to the facts that are discovered. Facts always circumscribe freedom, so evaluation costs a movement its right to exist by opinion.

Since evaluation is concerned with program projection, including program planning and program implementation, it is concerned with five broad areas of endeavor, each of which should be subject to measurement:

- 1.) The tasks—or the problems.
- 2.) The personnel to conduct the program.
- 3.) The clientele—or the recipients.
- 4.) The methods, including equipment and materials.
- 5.) The results.

Evaluation within each of these areas should begin with the planning. In fact, if we are to measure our progress, it seems sensible to drive some stakes before we start. It takes more than one point to determine a direction. A compass does not point the way; neither does it tell you where you have been nor where you are going. It merely points north. We must take our bearings on at least two occasions to tell where or how far we have gone.

How to figure a bonus

It would seem appropriate for county agents and vo-ag teachers to receive bonuses for achievements. This is really a type of merit increase we hear so much about today. To be good, such an award should be objective, and this is the real problem. Merit is a good word, but it is so often abused. In fact, merit increases are frequently used as a club to line-up employees. There are many instances of dissatisfaction among employees when one of them receives a merit raise and the others recognize the difficulty in assessing merit.

There is a way to objectively award achievements in certain areas of vocational efficiency. For example, if a county agent accepts the responsibility to increase the efficiency of every farmer in his county, then the average from year to year would measure the gains made. Suppose we set-up the pounds of pork produced per sow in six months as a criterion for the efficiency of the hog farmers. Then we could survey a random sample of farmers each year and calculate their average pork production. The gains through a period of years could be determined, and if the county agent had conducted a program in hog production, we could claim some credit for the increase. The increases could be converted into dollar values in this way: (Number of sows X pounds pork per sow X selling price of pork = total dollars income.) This figure could be compared. The number of sows and the selling price could be averaged over the years, so that the

major factor would be pounds of pork.

This same procedure could be used for eggs, milk, and beef calf production. It would work with corn, alfalfa, and small grains, if allowances were made for weather.

I've helped with many surveys of this kind and recognize some of the cautions that must be taken. It could be done, and I think that it would be well worth the cost if done on a state wide basis with supervision from the agricultural college.

However, these surveys enter only the area of vocational efficiency. Such objectives as health, social-civic and recreation would have to be approached in a different way. They would be difficult, but not impossible. Whenever we want to approach program-building wholeheartedly, we must evaluate the results and only then can we award merit objectively.

It should be done, but I doubt if it will, in any large scale, because it's hard work, and then, too, there are too many persons who think they are smart enough to get merit by other devious ways, for example, become a company man or put their wives on the team.

I refer you to page 15 in "Principles of Program Projection" for more on the evaluation problem.

D. M. Hall is associate professor in charge of field studies, Cooperative Extension Service, University of Illinois, Urbana.

COUNTY AGENT AND VO-AG TEACHER

"Using Strongbarn, I built this 40' x 52' machine shed for less than \$1 a square foot"

Albert Peterson
Trenton, Nebraska



"I asked for Strongbarn, too. Because it's extra sturdy. With all the storms we get out here in the high plains, you've got to build strong," Albert reported.

"I built this building all by myself. The only help I had was when I mixed and poured the concrete footings and floor. Took me about three months. Of course, I didn't work at it full time. I still had to feed my cattle every day, do other chores, go into town; and our bad winter last year cut into my working time, too. All told, I guess I spent about two months' working time finishing that shed.

"Last spring we had a storm come out of the northwest and it was a dandy. I thought our house was agoin'. 70-mile-an-hour winds hit us again and again. The next morning after that storm I climbed up on the roof of my shed, and that Strongbarn roofing was just as tight as could be.

"We had five feet of snow last winter, too. The roof had a real load of snow on it. Proves to me that Strongbarn can take it. After all that snow and the rain we had later on, I looked in my shed and didn't see any wet spots anywhere.

"This machine shed cost almost \$2,000, and that included everything—lumber, nails, concrete, Strongbarn, timber rings . . . well, everything. A lot of my neighbors came around to look at my shed. Everybody who looked at it thinks it's tops," Albert concluded.

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Sounding Board

Friends of Walt Jacoby, formerly Connecticut State Director of Agricultural Education Programs, will be interested to know that he was appointed Director of Youth Education of the American Institute of Cooperation on January 1. He replaces Howard McClarren, who is retiring.

The writer will never forget the fun he had way back in December 1951, writing his first article for this magazine. Sure, it was about Walt Jacoby, vo-ag teacher at Kennett Square, Pennsylvania!

We wish Walt a lot of luck—and to Howard, who also has a host of friends, we hope he gets out and visits a lot of them!

QUESTION of the month

Occasionally the editors are asked for information on a subject which appears to be of sufficient general interest to warrant special editorial treatment. This month's "Question" is:

Q.—How many state extension services still receive financial and other assistance (such as office space etc.) from the Farm Bureau?

COUNTY AGENT & VO-AG TEACHER received the following answer from Paul V. Kepner, Administrator, Federal Extension Service, Washington, D. C.

A.—"... we have only one State where direct financial contributions are made in the operating relationships between the local Farm Bureau units and the local Extension units in that State. In view of the magnitude of the contribution being made by the Illinois Agricultural Association in support of the extension work in Illinois, this transition has to be somewhat gradual, but very fine progress is being made."

Currently the County Farm Bureaus and Home Bureaus in Illinois are providing to the University approximately a million dollars to enable the University to meet county agent's salaries, travel, and operating expenses in part. Such contributions are no longer made direct to the local county extension units. We anticipate that further adjustments in this financial relationship will be made as soon as practicable."

VERMONT CHANGEOVER

Vermont Extension Service recently ended its long association with county farm bureaus and formed extension service committees in each county. Since 1947 the extension services in 13 of Vermont's 14 counties had operated under a memoranda of understanding with the Farm Bureau. The Farm Bureau's Trustees have also acted as the Extension Service Committee.

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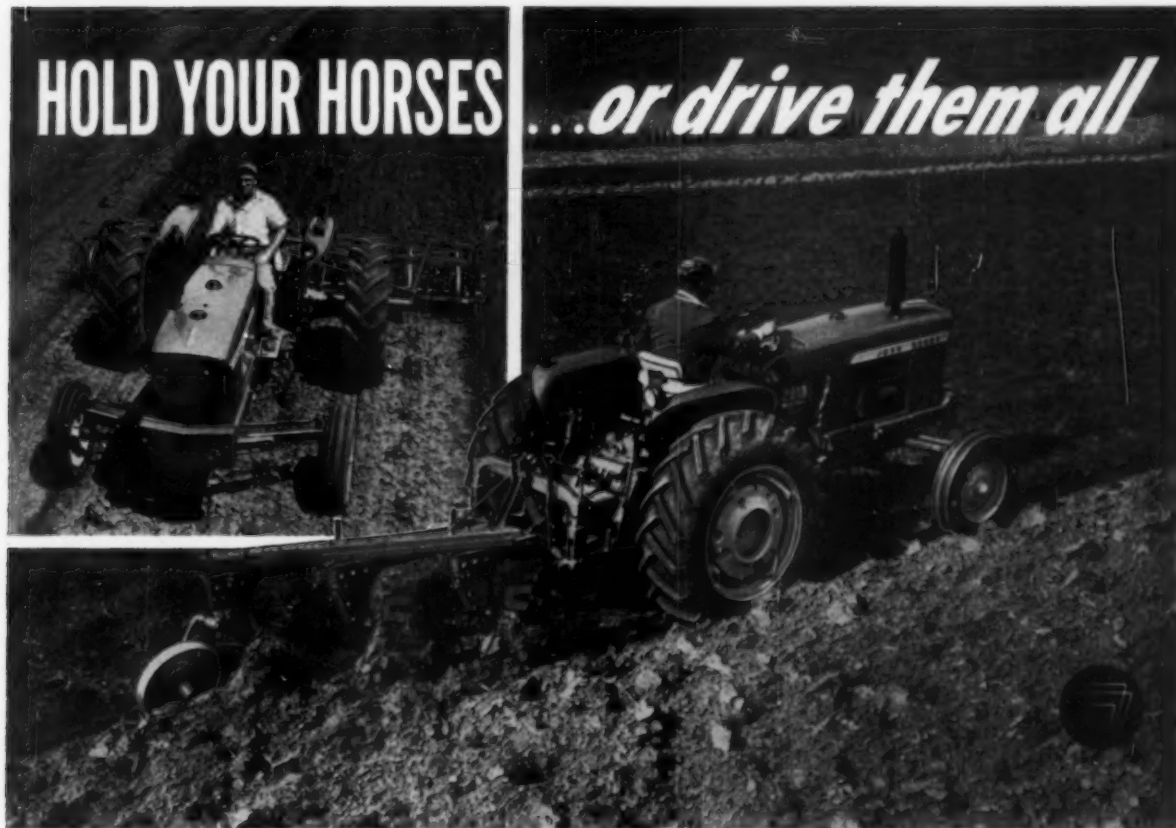
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"Andy" Anderson of rural Delta County checks with Heirman on blueprints for a new motel unit. MSU tourist and resort specialists helped Heirman draw up building plans for Anderson.

NEW DAY

in the life of a County Agent

It's nothing short of "fantastic" what can happen when Extension "sets its mind to it." Look what's happened in Delta County, Michigan, for instance, where the county agent continues to tackle farm problems, with the help of Joe Heirman, who is county extension director "in charge of everything."

By JIM GOOCH

"HEY JOE, hear you've found us a market for more cedar posts," commented a Delta County, Michigan woodlot owner one day last spring as he met Joe Heirman on Escanaba's main street. He was addressing Joe Heirman, county extension director, formerly known as the county agent.

The Joe Heirman he was talking to is known by various groups in Delta County as the "tourist and resort agent," a coordinator for zoning and school studies, chairman of a forestry service pool and an industrial consultant. A small group of Heirman's council and Rural Development committee members associate him with all of these efforts. As county extension director, he is also the administrator and coordinator for agriculture, 4-H and home economics programs.

PROBLEMS INTER-RELATED

In this essentially rural county, agricultural and non-agricultural groups have come to realize that most of their problems and opportunities are inter-related. Because of the farmers' influence on the local economy and because of industry's influence on better local and export markets for farm products, citizens feel the county extension staff can best serve agriculture and non-agricultural interests by working with all people in the county.

This is exactly what Heirman is doing—working with many county organizations to tackle problems that affect the economic and social welfare of the whole county—with but little regard as to whether these problems are completely rural in nature.

Within the past two years he has: 1) served as local coordinator for five-township school study; 2) completed a survey aimed at showing the potential for a new potato flake factory; 3) organized a forestry service pool to boost the effectiveness of all agencies serving woodlot owners; 4) served on a community relations committee aimed at developing a more favorable climate for new industry by improving labor-management relations; 5) helped boost the forestry industry by working as a liaison between woodlot owners and buyers or processors; 6) worked with his agricultural agent to introduce new crops which could be processed during slack seasons in an established canning factory, and 7) arranged for consultants to assist with zoning studies in two towns.

Over three years ago citizens in Michigan's Upper Peninsula counties were asking Michigan State University for many services that had not heretofore been available through the Cooperative Extension program.

Farmers and other citizens agreed
COUNTY AGENT AND VO-AG TEACHER

that assistance with education, community and industrial studies and tourist and resort business development could provide the quickest solutions to many of their problems.

As one farmer put it, "we've come a long way in boosting rural living standards and production know-how. Now, maybe we can best solve some of our farm problems by joining with others to erase factors that are holding back our economic and social growth."

To answer these requests a new Rural Resource Development program was introduced in the district. As District Extension Director Daniel W. Sturt, explains, "the program simply calls for a broader and more meaningful array of educational resources from Michigan State University being made available to assist the people in solving problems and making the best use of their resources."

Out of this, a sort of "Better-Living-By-Design" Extension program has emerged in which local people are determining what they want and where they want to go. It's a self-help plan to meet local needs, as spelled out in the national Rural Development program. Delta, Alger and Mackinac are official Rural Development counties with the whole Upper Peninsula district designed as a Rural Development area. So Delta County is used here to illustrate many of the new services being offered by Extension throughout the 14-county Upper Peninsula district.

The Delta County program is also exploring a large number of the new proposed fields of service suggested in the Scope Report on the Extension Service. Heirman's program and similar ones in other counties of the Upper Peninsula are considered sounding boards by county extension workers throughout Michigan and other states. They're watching for clues as to how extension workers may best serve their public next year—10 years from now.

HASN'T LOST IDENTITY

One thing that may have surprised even Heirman is that he hasn't lost his identity as "Joe the county extension man," as he had his title changed and entered into the new fields of service. "It's surprising," Heirman said last month, "but I guess people expect many things of a county agent anyway. Might as well make it official. The way our program is set up you have direct channels to get resource people for help in such specialized fields as educational studies, zoning and for encouraging industries which can boost consumption of local farm products."

Heirman served as coordinator for the five-township school study he completed in 1959. Normally such studies are coordinated by a campus-based educational specialist. Heirman was se-

lected to coordinate this one to find out whether or not county Extension people could boost the effectiveness of such studies since they represent the institution and also are well-known locally. Campus consultants say that it was the smoothest and most effective study they can remember, and they credit Heirman's knowledge of local conditions and his influence in bringing about better farm-town relations. The county extension director's participation was made possible because of a new program in the district which combines all of Michigan State University's off-campus services into one package which is available through the county Extension office.

RESULTS ARE "FANTASTIC"

Between the regularly monthly work sessions with M.S.U. consultants and 100 local people on the school study committees, Heirman would meet with the steering committee to help iron out any in-between problems. He was also on hand to help sub-committees distribute opinionnaires and arrange for photographic copies of charts and maps.

"Results have been fantastic," reports Dr. Floyd Parker, well-known school consultant with M.S.U. Within months after the study was completed four districts had decided to merge and had passed a bond issue for a new \$3,500,000 high school.

Working closely with a canning factory owner and county agricultural agent, Don Rowe, Heirman is fostering the growth of a new commercial vegetable industry which is springing up out of the county's cut-over timber region.

Test plots are being established to test and introduce new vegetable crops to the area. Strawberry growing demonstrations have resulted in enough acreage so there will be some commercial shipments this year. The area produces vegetables of outstanding quality, but the great distances from fresh markets had prevented growth of the vegetable industry until Heirman started working with the large canning plant and other processors.

Having just completed a lengthy educational and information gathering program, he hopes soon to see a potato processing plant brought in to make better use of the county's over-supply of potatoes. Meanwhile, he and neighboring county Extension workers have made contact with a new potato flake plant across the straits at Rogers City, Michigan so growers may have better market outlets.

The county extension director has helped plan and landscape many of the area's new motels, currently going up to take advantage of the important and growing tourist business. The county

(Continued on page 39)



Heirman visits Gladstone canning factory operated by George Hansen Sr. and son. Heirman helped Hansens' develop canning industry which provides outlet for county farmers.



New map prepared under guidance of MSU zoning specialists is studied by Heirman and Gladstone City Manager Henry Hendrickson.



Being coordinator for school study was another new experience for the county extension director. Here he picks up opinionnaires from superintendent Lawrence Klug (left), Wells Township schools.



District Forester Art Schafer and Heirman check harvest from a demonstration forestry plot which the two set up as an educational demonstration.



1961 HERBICIDE Report

LIKE people, you can't judge the new chemicals by their looks—or their field tests. It's *performance* under a variety of conditions that really counts.

We've been bringing you special reports on new herbicides for ten years now. Once again, as in the past, some compounds which scientists pinned great hopes on just didn't pan out.

All in all, though, 1960 was an "exciting year" as reported by Stanford N. Fertig, professor of agronomy, Cornell University, at the Northeastern Weed Control Conference in New York City last month.

Here's the way he summarized some of the outstanding developments in the 1960 growing season:

COMBINATIONS WORK BEST

Combinations of herbicides show increased effectiveness over the use of a single compound for the control of a number of perennial weed problems. Some of these are discussed later in this article. Others, including CIPC plus Randox, dalapon plus Dinitro and 4(2,4-DP) plus dalapon were subjects of previous reports at the Conference.

Amiben: The liquid amine formulation as a pre-emergence treatment looks very promising for annual broad-leaved and annual grass control at 3 to 4 pounds per acre on carrots, black-eyed peas, lima beans, pumpkin, snap beans and soybeans. At rates of 2 pounds per acre favorable results have been obtained on cucumbers. The weed control was excellent, as was the stand of plants, weight of plants, numbers and weight of fruits.

The granular formulation has looked promising on crucifers, peppers, sweet potatoes, tomatoes, and ornamentals, at rates of 3 to 8 pounds per acre.

For optimum results with Amiben moisture is essential. Irrigation or rainfall sufficient for good crop growth is sufficient for weed control.

Amitrol-T: There is a marked increase in the activity of Amitrol-T over Amino Triazole in the powder formulation. It is more effective on cattails, milkweed, leafy spurge and cypress spurge than the powder and is equally as effective on Canada Thistle, hoary cress, and perennial sow thistle.

Amitrol-T at 2 pounds per acre as a plow-down treatment followed by Atrazine at 2 pounds pre-emergence looked excellent for quackgrass control in corn. Early post-emergence cultivations (1 to 2) are essential for good control.

Some reports indicate promising control on nutgrass with Amitrol-T.

Amitrime: Looks promising for general vegetation control at rates of 10 to 12 pounds active per acre. Several reports indicate effective weed control in woody plant nurseries, forest plantations, ornamental plantings, orchards, and around highway guard rails, route signs, etc. For nursery or forest plantation weed control, 4 pounds of active chemical per acre as a directed spray has controlled most weed problems without injury to woody plants. Most coniferous and broadleaf trees and shrubs are sufficiently tolerant.

Some ornamentals reported as susceptible include privet, honeysuckle and lilac.

Casoron (Niagara 5996): This compound shapes up as a promising pre-emergence herbicide on a number of different crops. At rates of 3 to 4 pounds per acre, the control of annual broad-leaved weeds and annual grasses has looked good in corn, beans (lima and snap), peas, potatoes, soybeans and sweet potatoes.

The most promising approach for Casoron appears to be treatments that are post-emergence to the crop but pre-emergence to the weeds. A "weed-free" situation is a "must" at the time applications are made. Using this approach, promising results were reported in can-

taloupe, celery, cucumbers, gladioli, peppers, sweet corn and tomatoes.

Soil type would appear to be an important factor in the initial and residual effectiveness of Casoron. Applications on the heavier soil types have resulted in less crop injury than those on light or sandy soils.

Promising results have also been reported on cranberries, providing treatments are made in the spring prior to the start of weed growth.

Dacthal: This compound received many favorable reports as a pre-emergence treatment of weed-crop situations at rates of 4 to 12 pounds active per acre. It continues to look good for the control of crabgrass in turf. The reported injury to turf grasses including bentgrass, Kentucky bluegrass, red fescue and redbud has been variable—from none to serious with some species.

Good weed control was reported for lima beans when applied just after seeding, for onions on mineral soils, for transplanted peppers either as an overall spray or a granular, for tomatoes as a post-planting treatment and after the last cultivation, on seeded cabbage and broccoli, and as a pre-emergence on peas.

Favorable results were also obtained during the 1960 growing season for annual weed control in summer seeded alfalfa, annual grass control in field corn and in soybeans.

In the work with ornamentals, nursery stock shows good tolerance up to 12 pounds per acre and gladiolus from 2 to 8 pounds. The control of weeds has been variable.

Dicryl (Niagara 4556): Dicryl has been promising as a post-emergence herbicide for carrots, celery and gladioli. Application rates of 3 to 4 pounds active per acre, when carrots have developed their first true leaves, have been effective. Also, good weed control has

(Continued on page 24)



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Broader registration for Thiodan—powerful new insecticide—gives you effective, economical control of aphids and many other important insects.

Thiodan cleans up heavy aphid infestations where other sprays and dusts fail. It outperforms previously available materials; fewer applications give positive, long-lasting control of a wide range of vegetable insect pests.

CROP	TO CONTROL	APPLICATION
Beans	Mexican bean beetle	Up to pod formation
Broccoli Cabbage Cauliflower	Cabbage looper, imported cabbage worm, diamond-back moth larvae, cross-striped cabbage worm	Up to formation of edible parts
Cucumbers, Melons, Squash	Aphids	Up to 14 days prior to harvest
Eggplants, Peppers	Aphids	Up to 7 days prior to harvest
Potatoes	Flea beetle, Colorado potato beetle, leafhoppers, aphids, southern armyworm, green stink bug, potato tuberworm, leaf-footed plant bug	Up to harvest
Tomatoes	Aphids, whitefly, Colorado potato beetle, flea beetle, green stink bug	Up to 7 days prior to harvest

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TECHNICAL CHEMICALS DEPT., NIAGARA CHEMICAL DIVISION, FOOD MACHINERY AND CHEMICAL CORPORATION, MIDDLEPORT, N. Y.

been reported on cucumbers with application rates of 4 to 8 pounds per acre at time of cucumber emergence.

In the treatment of carrots, transplanted celery or gladioli, the size of the weed species is important. The broad-leaved species should not exceed two inches in height, while annual grasses should not exceed 1 inch if satisfactory control is to be realized.

Analogs of Eptam: R-1607, R-1862, R-1870, R-2007, R-2060, R-2061.

These compounds have shown excellent activity against a number of weed species. Soil incorporated treatments at rates of 3 to 6 pounds active per acre may find a place on such crops as beans, beets, corn, crucifers, spinach, strawberries, tomatoes and tobacco. R-1607 looked promising as a lay-by on potatoes.

The very promising results on nutgrass are most encouraging. Good control has been reported in beans, corn and other crops. Soil incorporation immediately after application is emphasized.

The granular materials show equal effectiveness for weed control. The crop injury to equal rates of granular and spray have been variable.

Falone (3Y9), B-528 and B-562: The 1960 results with Falone and B-528 as pre-emergence treatments on corn were very promising. Rates of 2 to 6 pounds per acre as liquid or granular applications were equally effective on a number of broad-leaved and annual grass species.

Good results were also reported on white potatoes, strawberries, on some ornamentals. The 10 per cent granular formulation caused no injury to yews or hemlock in field plantings or beds. Residual control lasted 6 to 9 weeks.

Post-emergence applications of B-562 looked promising on lettuce on mineral soils. Weeds up to one-inch tall were effectively controlled with no damage to the lettuce.

Hercules 7175: Hercules 7175 has shown promise for pre-emergence weed control in white potatoes, woody plant control with soil applications and as a soil sterilant. For pre-emergence weed control, rates of 2 pounds per acre look promising for a wide range of weed species. Seasonal control of vegetation has been obtained with rates of 20 to 40 pounds per acre.

Monsanto CP-17029: This compound shows excellent promise on both broad-leaved and grass species. Application of 2 to 3 pounds active per acre pre-emergence has resulted in 6 to 8 weeks of residual control. Research results show corn and soybeans to be tolerant.

Niagara 2995: This compound has demonstrated good pre-emergent activity against both annual broad-leaved and grass species. Specific crop

tolerance has not been clearly defined but the compound has shown enough promise to be checked further in 1961.

Silvex (2,4,5-T Propionic): The effectiveness of 2,4,5-TP in controlling a number of heretofore hard-to-kill species is most promising. At rates of one pound per acre or less, bedstraw, dog fennel, white cockle, cinquefoil, daisy fleabane, wild carrot, ox-eye daisy, and grass-leaved stitchwort were controlled. At higher rates, with repeat applications, promising results have been obtained on leafy spurge, cypress spurge and on knapweed.

Triazines: G-32292, G-32911, G-34161, G-34162, G-34690, G-34696, G-34698, Atraton, Atrazine, Ipazine, Ipatone, Prometone and Trietazine. For the control of broad-leaved weeds and annual and perennial grasses, the Triazines have shown outstanding promise.

At rates of 1 to 2 pounds active per acre as at planting, pre-emergence and early post-emergence treatments on corn, the control of broad-leaved and annual grass species has been excellent.

For quackgrass control in corn, applications of 2 pounds of Atrazine before plowing followed by 1 to 2 pounds pre- or early post-emergence has resulted in seasonal control. Applications of Amiotrol-T at 2 pounds before plowing plus Atrazine at 2 pounds as a pre-emergence treatment were just as promising when accompanied by early post-emergence cultivation.

A number of experiments show early post-emergence applications of Atrazine at 3 to 4 pounds to give seasonal control of nutgrass.

In orchards, the triazines in combination with amino triazole, dalapon and diuron show promise on apples, pears, plums, cherries and peaches. These are applied as early spring applications or following cultivation.

Promising results are also reported for ornamentals and nursery stock. The granulars look particularly promising for this field of weed control.

There is a difference in the selectivity of the range of compounds available. Research results and observations dur-

ing 1960 show good weed control in lima beans with Trietazine without injury, possible control of horse nettle, a tolerance of seedling legume species, pre- and post-emergence applications resulting in malformations in corn and variable results, as with other compounds between granular and spray applications.

Velsicol 58-CS-11: Field tests with this compound show good herbicidal activity on many broadleaved weeds and certain grass species.

Tests on dog fennel growing in wheat and barley resulted in good control at $\frac{1}{4}$ to $\frac{1}{2}$ pound per acre. Other weed species growing in cereals on which control is indicated include stinkweed, wild buckwheat, mustards, horsetail and corn spurry.

As pre-emergence applications of 2 to 4 pounds to areas of grass seed crops infested with downy brome the control was promising.

At rates of 10 to 20 pounds per acre, good control of field bindweed has also been reported.

Zytron: A summary of the 1960 research work shows Zytron to be a promising and versatile compound. At rates of 15 to 30 pounds per acre as a pre-emergence spray, crabgrass control is good. The granular and liquid forms showed equally good results. These pre-emergence treatments have also been effective on carpet weed, chickweed, dooryard knotweed, pigweed, purslane, and *Veronica* species. Post-emergence applications as emulsifiable sprays have resulted in good control of chickweed and henbit on turf areas.

In the vegetable group, good weed control was reported for carrots when applied a few days after seeding, for lima beans when applied just after seeding (12 to 18 pounds), and as a pre-emergence treatment for annual weed and grass control in egg plant, peas and spinach, at 6 to 10 pounds per acre. Lay-by treatments on potatoes for late germinating annual grasses also looked good.

Excellent results were reported from

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Wild oats flourished in this field—but only in the narrow strip which was missed when applying Carbyne, Spencer's wild oat herbicide. The field shown here was on one of the 2500 farms in the U. S. and Canada on which Carbyne was used in a program of supervised application last summer.

THE 1961 OUTLOOK FOR PRE-EMERGENCE HERBICIDES IN CORN:

WHAT YOU CAN EXPECT OF PRE-EMERGENCE HERBICIDES

By JOHN HARMS

WHAT is the unvarnished truth about the new pre-emergence weedkillers? Just how good are they? What do the experts across the country really think about them?

Here, in their own words, is what well-known weed control specialists, plant pathologists and agronomists say about Atrazine and Simazine. Their reports stem directly from their own field tests or from evaluation of farmer experiences in their areas.

• They give Atrazine and Simazine a pretty good send-off—although they don't hesitate to point up some of the difficulties farmers encounter.

They point up some of the bugs in the use of these chemicals—and tell how to avoid them.

• Some of the scientists report amazing results. Some tests didn't come up to snuff. In each case, the experts tell you why. For some farmers, the new herbicides have paid off richly—for some they didn't. The experts tell you how hit-or-miss can be avoided.

In this interview report, we have tried to get the straight lowdown on Atrazine and Simazine in advance of planting season to arm you with the kind of information your farmers will need this year.

As a reporter, I hope you find this of real value.

IN IOWA, 1960 WAS AN EXCELLENT YEAR FOR PRE-EMERGENCE SPRAYS

E. P. Sylwester, Botany & Plant Pathology Dept., Iowa State College:

As every farmer knows, each growing season is different from the one before. And as we are beginning to find out, results obtained from pre-emergence sprays in corn vary with the variations in growing seasons. How these chemicals are used, therefore, depends a great deal upon prevailing growing conditions—and mostly with the level of moisture conditions we get in any particular year.

For example, in Iowa 1959 was a relatively dry year in many places and results from pre-emergence sprays were less than we had hoped for. This was particularly so when dosages were incorrect, or seedbeds not adequately prepared. On the other hand, results were good where moisture conditions were favorable.

However, 1960 was an excellent year for use of pre-emergence sprays—primarily because we had more moisture. Use of sprays generally last year was effective and gratifying. The planting season generally was late, although occasional dry spells permitted fairly adequate seedbed preparation.

This resulted in quite adequate seedling weed control, because the frequent rains encouraged germination, and necessitated additional workings before planting. Even though the season was late most corn matured into a bounteous crop,



the second largest in the state's history.

A summary of some results obtained with pre-emergence demonstrational sprays follow. In one field the following yields resulted:

Check, 72 bushels per acre; Simazine (12 inch band), 84 bushels per acre; Atrazine (12 inch band), 94 bushels per acre; 2,4-D (12 inch band), 64 bushels per acre; Randox (12 inch band), 84 bushels per acre; Simazine (blanket), 99 bushels per acre, and Atrazine (blanket), 106 bushels per acre.

Fertility and insect control were adequate, but a 6-inch rain occurred a week after planting and this undoubtedly contributed to the poor showing of the 2,4-D, since both stalk count and yield were down in the 2,4-D treated plot. All plots were cultivated three times, but the first cultivation was late and rapid.

In another demonstration plot the following results were obtained, all blanket treated and not cultivated: Check, 79 bushels per acre; Atrazine, 126 bushels per acre, and Simazine, 131 bushels per acre. These two chemicals outperformed, by far, two others tested. Excessive rain throughout the season made for weedy plots, except those with Simazine and Atrazine which remained practically clean throughout the season.

The check plot was rotary hoed once and cultivated twice. A more normal rainfall season would have resulted in much less weed growth in the other plots.

In another plot where Atrazine was used in a 12-inch band, on extremely weedy bottom land, the Atrazine was applied, and then it turned dry. The cooperators rotary hoed lengthwise once and cultivated the corn once. The check plot was

JOHN HARMS REPORT

"Use of sprays generally last year was effective . . . gratifying."

rotary hoed once and cultivated twice. The Atrazine treated plot yielded 129 bushels per acre and the check plot 99 bushels per acre.

In all the above plots even visual examination disclosed better weed control yields in treated over non-treated plots.

There are other noteworthy results to report, but space does not permit. It should be pointed out in all fairness that in all these plots, more was involved than just good pre-emergence weed control. All plots had apparently adequate supplies of fertilizer, there was a capacity stand of adapted hybrids, there was adequate moisture, fair to good seedbed preparation and good soil insect control.

What of the future of pre-emergence sprays? We are encouraging all our farmers to try an acre of one or two of the most promising materials under their own conditions, type of soil, moisture, temperature, organic matter content, and their own specific hybrid or hybrids. They should have an inherent annual weed problem, and preferably use it on land where corn follows corn and where weeds have always been a problem. They themselves must learn the "feel" of the materials and iron out difficulties of measuring, calibration and application. Furthermore, they must judge results, not on a single year's performance, but by the average of several year's results.

Pre-emergence sprays are here to stay and they are another weapon in our struggle against weeds.

IN SOUTH DAKOTA MOST SPRAY APPLICATIONS WERE SATISFACTORY

Lyle Derscheid, Weed Control Specialist, South Dakota State College: Simazine has been used experimentally in South Dakota for four years and Atrazine was tested two years. Farmers used a limited amount of Simazine in 1959 and a similar amount of Atrazine during 1960.

During 1957 and 1958, rates of 2 to 4 pounds active ingredients per acre of Simazine killed up to 90 per cent of the annual weeds—primarily foxtails, pigweed, lambsquarters, barnyard grass and kochia. We noticed that we obtained good weed kill whenever we had some good rains during the first 2½ weeks after spraying.

We studied the rainfall pattern at six places in eastern South Dakota for the past 10 years. We estimate that there was enough rainfall shortly after corn planting time to make Simazine effective from 3 to 6 years out of the 10. Atrazine would have killed the weeds 5 to 8 years.

When adequate rain falls to activate the chemical, 2 pounds of active ingredients of either chemical per acre on the area treated will generally replace the first cultivation. Four pounds of Simazine will usually take the place of 2 and sometimes all 3 cultivations.

The most practical way to use these chemicals is to apply them in 14-inch bands over the row. In bands the chemical can replace the first cultivation. Later cultivations are needed to kill weeds between the rows. Consequently, 2 to 3 pounds per acre on the area treated are all that is needed. When we put it on 14-inch bands, we only treat about one-

third of the field so we use only 2/3 to 1 pound of active ingredient per acre of field.

We have compared sprays with granular forms of the same chemicals. When we apply the same amount of active ingredient, we find that sprays and granules give about the same results. The big problem is getting the granules applied at the proper rate.

If poor results occurred, we have found that they could generally be attributed to the lack of rainfall after treatment or faulty application. During 1960 most spray applications were satisfactory, because we had several good rains at the right time.

We know of one farmer in Clay County who was unhappy with the granules so he treated only part of his field. He did not think that the chemical had killed any weeds until he started to pick the corn. He then observed that the weed growth in the untreated part of the field made it more difficult to harvest the crop.

We believe that chemicals applied pre-emergence will be used particularly during wet springs when it will be difficult to perform the first cultivation. Farmers know that weeds have to be killed when they are young or they will reduce crop yields.

CORN WITHOUT WEEDS— KILL WEEDS BEFORE THEY START

Oliver C. Lee, Dept. of Botany & Plant Pathology, Purdue University:

The simplest and surest means of having a weed-free corn field is to prevent the weed growth before it starts. This is possible by applying an effective pre-emergence herbicide when the corn is planted. Keeping the weeds away from the corn plants when they are small and helpless is of utmost importance. It is then that the weeds do the most damage to the crop. Most corn growers have observed the effects of a heavy infestation of giant foxtail, smartweed or a combination of weeds common to corn fields. The weeds cause the corn plants to become spindling and lack the good lush green color of healthy, sturdy plants. Even if weeds are removed later, the results of that early competition usually shows up in fewer bushels of corn at harvest time.

The greatest returns from investments in pre-emergence herbicides are obtained when they are used on extremely weedy fields where cultivation or spraying with 2,4-D post-emergence does not do an adequate job. There are also situations when timely cultivations are not possible due to wet field conditions. Thus, chemical treatment will serve as insurance against the weeds taking the crop. Since most pre-emergence treatments are rather costly, band applications over the row are recommended. This type of treatment when applied in a 14-inch band over rows spaced 40 inches apart requires only one-third as much chemical as over-all applications. If the weeds are kept out of the row where the cultivator cannot reach, the weeds between the rows can be removed by timely cultivations.

Atrazine and Simazine are two pre-emergence herbicides that behave in about the same manner. They kill both broad-



"Simazine and Atrazine are the magic words . . . down on the farm."

leaf and grassy weeds when applied under favorable conditions for pre-emergence. Rates generally recommended are $1\frac{1}{4}$ pounds of 80 per cent material (wetttable powder) applied on a 14-inch band, using at least 6 gallons of water per acre, although the rate needed may vary with soil type.

ATRAZINE OR SIMAZINE WILL BE USED EXTENSIVELY IN NEW JERSEY

D. A. Schallock, *Weed Control Specialist, Rutgers University, New Brunswick, N. J.*: The interest in new herbicides for controlling weeds in corn is really an amazing thing. It is amazing to me because corn was a crop on which chemical weed control was quite successful.

Before joining the ranks of those talking and writing about recent advances in weed control on corn, let's look at 2,4-D which was and is particularly suited to control weeds in field corn—and hope this reflects the thinking of others responsible for weed control in the Northeast.

From the time before weeds and corn emerge from the soil until a directed corn spray is applied when the crop is several feet high, 2,4-D displays a remarkable flexibility in use for controlling broadleaved weeds. Pre-emergence treatments are also effective in controlling germinating annual grasses.

I advise farmers who have been using 2,4-D safely and successfully, not to be swayed by the deluge of information released about new herbicides. I also know many sweet corn growers who are very successful in controlling annual broadleaved and grassy weeds with a come-up application of dinitro.

So much for my position on 2,4-D. Now let's take a look at the newer weedkillers.

Simazine and Atrazine are the magic words on the radio, in the press, and even down on the farm. As far as the farmer is concerned, he would prefer that we talk about only one of these—Atrazine or Simazine, but not both. Confusion over choice of which to use has slowed down the acceptance of either material.

From the researcher to the farmer, Atrazine is emerging as the choice between these two materials. Let us be perfectly honest about the reasons for choosing Atrazine. Those who prefer Atrazine because its increased solubility will reduce the danger of residue carry-over to the following crops are on thin ice. Indeed, several investigators in the Northeast are reporting equal, if not increased residue from Atrazine as compared to Simazine. "The more soluble Atrazine will work better in dry weather" is an assumption not yet proven in research.

The proven justification for Atrazine is the fact that it may be used from planting time to post-emergence when weeds and corn are 4 to 6 inches tall. When used post-emergence on young perennial weeds like nutgrass (*Cyperus esculentus*), Atrazine has given encouraging control. Farmers want a single material that may be adapted to all possible courses of action.

The heavier soils of the Northeast are receiving applica-

tions of two pounds of the active material of Atrazine or Simazine. The light soils show excellent weed control with $1\frac{1}{2}$ pounds active or 2 pounds of the 80% wetttable powder. Although farmers are attracted to banded applications for economy, they use total coverage rather than attempt to work out the details of band application.

All factors taken into consideration, Atrazine or Simazine will be used on many acres of field and sweet corn in 1961.

**WEST VIRGINIA WEED CONTROL TRIALS IN CORN SHOW PROGRESS**

Collins Veatch, *Agronomy Dept., West Virginia University*: Atrazine and Simazine at rates of 2 pounds per acre suppressed nut and quackgrass growth, but rates of 4 to 6 pounds per acre gave better weed control. Atrazine was more effective than Simazine when applied post-emergence.



One cultivation at layby gave significant increases in corn yields and some improvement in weed control in the Point Pleasant trial last year. Under the wet variable conditions at Wardensville the cultivated area did not vary significantly from the uncultivated.

Under moist conditions, granular materials appeared to be as effective as spray applications for pre-emergence.

Increasing the 2,4-D application rate above 1 pound per acre tends to injure the corn without increasing the weed control.

REPORT ON WEED CONTROL IN CORN FOR THE WESTERN UNITED STATES

W. R. Furtick, *Farm Crops Dept., Oregon State College*: Use of chemical weed killers in corn is more complicated in the western United States compared to other areas, because of the low rainfall during the growing season. Most of the western corn acreage is grown under irrigation in the regions that have practically all of their rainfall in the winter. This complicates the use of pre-emergence weed killers.



There was substantial use of pre-emergence sprays in the West this past season with variable results. Where corn was irrigated by sprinkler after treatment, or the pre-emergence spray was incorporated into the soil by light harrowing or shallow discing, the results were usually good. But growers who applied pre-emergence weed killers on land irrigated by deep furrow between the corn rows did not get desired results because there was no top soil moisture to activate the chemical.

In the Pacific coastal areas where most irrigation is by overhead sprinkler, pre-emergence weed control has been

JOHN HARMS REPORT

"Most of the acreage this past year was treated with Atrazine."

used successfully for a number of years. Most of the acreage this past year was treated with Atrazine. This material has performed much better than previously used materials, because the weed problem is a mixture of various grasses and broadleaves.

In some areas Atrazine was disced into the soil in the early spring for the control of quackgrass. This gave excellent control of quackgrass and later germinating annual weeds. This treatment will be used more widely during the coming year.

There was some farmer use of materials such as Atrazine on furrow irrigated land in which the material was harrowed-in prior to the planting of corn. These applications were generally successful and there will be an expanded use of this

approach in 1961.

The triazines such as Atrazine and Simazine have not been recommended by the experiment stations or the manufacturer in the low rainfall areas irrigated by furrow, due to the failure of the chemicals to disappear in time to avoid injury to crops other than corn the following year. In these areas, the rainfall is too little to aid in the disappearance of the weed killer over the winter. This is also true for areas in California where double cropping is practiced. The long residual type herbicides will not disappear soon enough to avoid injury to the crop planted immediately after the harvest of corn.

WHAT THE SCIENTISTS SAID 'IN A NUTSHELL'—

1) Pre-emergence weed control can eliminate one or all cultivations in most farming regions of the country. Scientists seem agreed on that. At the very least, Atrazine and Simazine are major supplements to any corn-growing operation.

2) Band treatments are considered most practical from the standpoint of cost, although cost is beginning to be of smaller importance. Any farmer who *really* wants to up his yields might be encouraged to use broadcast application for absolute best results.

3) The amount of moisture—either rainfall or overhead irrigation—is of prime importance. Main thing is that the chemicals are wetted down after application, to activate them. They are not recommended in very low rainfall areas irrigated by furrow. Overhead or other irrigation—fine.

4) Neither Simazine nor Atrazine is the whole answer to a big corn crop. While they eliminate some work and can generally assure a bigger-than-before crop, proper fertilizing, insect control, and other established good cultural practices are still essential. While herbicides can substitute for cultivation, they are no substitute for good farming prac-

tices as a whole.

5) In some areas, Simazine is preferred—in others, Atrazine. Farmer can get good results with both, although you might check local recommendations for the one of choice.

6) For farmers hard to convince, suggest a test plot to compare with corn grown in usual manner. But to make his eyes pop when he harvests in fall—make sure he follows the recommended procedure accurately.

7) Indications from many sections of the country are that Simazine and Atrazine will play a big part in 1961 corn production. Farmers who are not familiar with what they can do, may lose another year before they try them. And that's money that can't be regained.

8) These chemicals are particularly effective in fields where annual grassy weeds have become an annual problem.

NOTE: Many of the application rates cited in these reports are based on active ingredient. Both Atrazine and Simazine herbicides are commercially available as 80% wettable powders. Label recommendations indicate the correct rate of application for your particular soil type. Granules are also available. Follow label directions.

Reprint Editor
COUNTY AGENT & VO-AG TEACHER
37841 Euclid Avenue
Willoughby, Ohio

Please send me _____ copies of Atrazine and Simazine corn brochure (GAC730)

Kindly schedule the motion picture, "A Way With Weeds," for (date) _____
(1st choice) (2nd choice) (3rd choice)

Please forward _____ copies of reprint, "What You Can Expect of Pre-Emergence Herbicides."

Send to (please type or print):

Name _____ Title _____

Address _____

City _____ State _____

late research

- *Possibilities of giving corn plants extra chromosomes are studied*
- *Tobacco variety resistant to root knot nematodes available this year*
- *Pigs prefer real sugar to artificial sweetener in tests at Iowa State*

Simple, inexpensive plastic bubbles have proved to be satisfactory for temporary greenhouses, crop storage and similar farm uses in tests by Michigan State University Agricultural Experiment Station researchers. The bubbles don't need any structural framework, are inflated like a balloon and kept up with air pressure from a small electric motor and fan. Usually made of 6-mil polyethylene film, bubble buildings cost about 20 to 25 cents for each square foot of floor space.

Proper roof overhang or projection can protect large south windows from the extremes of summer solar heat. The same windows, protected in the summer, will receive much needed solar heat in winter, when the sun is low, adding greatly to the warmth and comfort inside. L. W. Neubauer, of the University of California, Davis, reports that benefits from proper overhangs are most apparent in residences with large picture windows facing south, but also obtained in many poultry houses, hog houses and dairy barns.

Corn planted too early on cold, wet soils gets off to a slow start, advises Keller E. Beeson, agronomist of Purdue University. Temperatures in early forenoon 3 inches beneath the surface should be at least 55° on most soils to get the seedlings started rapidly. A 7-year test at Lafayette, Ind., gave an average reduction of 3 bushels an acre for corn planted before May 10 as compared to the crop planted in mid- or late-May.

Will feeding yeast to dairy cattle increase milk or fat production? W. S. Griffith, dairy specialist at Virginia Polytechnic Institute, says conflicting research reports have shown that in some cases fat test of milk was increased by as much as 0.8 per cent by feeding yeast, while other reports show negative results. Oklahoma State University scientists found that neither total milk production nor fat test was significantly affected by adding dried yeast to the ration.

Possibilities of giving corn plants an extra set or two of chromosomes are being studied by University of Illinois plant breeders. Today's corn has just two sets of 10 different kinds of chromosomes. Usually plants have only two sets of chromosomes. If two sets are added, the plant is called a tetraploid. Man-made tetraploid rye and red clover, as well as sugar beets, are raised on a limited scale in northern Europe. Ornamentals and certain fruits with extra chromosomes are widely grown because of their showy flowers or larger fruits. Scientists at the Illinois Agricultural Experiment Station are working to harness the desirable results of this genetic phenomenon that occur when chromosomes are added. D. E. Alexander reports that some synthetic varieties of corn hold up well in tests with regular hybrids.

NC 95, the first flue-cured tobacco variety developed with resistance to root knot nematodes, will be avail-

able to North Carolina tobacco growers this year. Furney Todd, Extension plant pathologist at North Carolina State College, said he would like to see a lot of farmers try NC 95 on a small scale, without going overboard, because "There are some things we don't know about the new variety." NC 95 is resistant to about 95 per cent of the root knot nematodes that plague the state's tobacco growers, but is not resistant to three minor species of the pest.

Spiramycin, a new antibiotic drug, was remarkably effective in clearing up cases of sinusitis in turkeys during tests at the Ohio Agricultural Experiment Station. Spiramycin was injected directly into the sinus cavities. At the 100 milligram level, more than 90 per cent of the afflicted turkeys recovered. The drug was not as effective when mixed into the turkeys' feed, even when 200 grams per ton of feed were used. Higher levels or longer periods of medication may have been more successful.

Pecan butter, a new product developed at the Georgia Experiment Station, is believed to hold great promise as a new end product for the nation's pecan crop. Several business firms are reported interested in commercial development of the product. Pecan butter can be used as a flavoring and a source of unsaturated fat in milk shakes, cream frostings, chiffon pies, bread, hot cakes, cookies and confections.

Two-week-old pigs know they want real sugar in their starter feed, tests at Iowa State show. Given a choice between a ration with 15 per cent sucrose (cane sugar) and one with 15 per cent artificial sweetener, the pigs preferred the ration with sucrose by a proportion of 92 to 8. And sucrose rations got 97 per cent of the pig "patronage" in competition with a ration containing a combination of sucrose and artificial sweetener.

Certain plant steroids—new substances for evaluation in livestock feeding—have emerged as effective growth promoters in studies conducted by Chas. Pfizer & Co., Inc. Smilagenin, sarsasapogenin and hecogenin have been found by Pfizer scientists to exert a growth-accelerating effect similar to stilbestrol but minus the undesirable hormonal effect on animals. In four trials with fattening lambs, an 8 gram per ton level of smilagenin produced an average improvement in gains of 19 per cent. The substance also appeared to improve feed efficiency by 14.5 per cent with apparent improvement in dressing per cent and carcass grade in lambs. Results with beef cattle were reported equally encouraging.

European corn borers won't want to eat corn now being developed at the University of Illinois. Corn breeders have discovered that corn borer resistance is inherited. They are working to develop inbred lines of corn that will have the ability to resist the corn borer. These resistant inbred lines can then be used to produce a resistant high-yielding hybrid. Corn borers find most of today's hybrids very tasty.



New approaches in

INSECT CONTROL



RESearch geared to wipe out the boll weevil was outlined at Mississippi State College January 5 by Dr. T. B. Davich, director of the new boll weevil research laboratory.

He spoke to around 300 entomologists and members of the insecticide industry from six states at the seventh annual Mississippi Insect Control Conference.

"Emphasis will be placed on new approaches in chemical control of boll weevils and basic research to developing new leads in long-range control of boll weevils," he said.

"If we could discover a systemic insecticide that would kill boll weevils for 12 weeks after the cotton is planted, then we would have no more boll weevil problem," he declared.

Dr. Davich outlined primary fields of research to be conducted at the new facility, which is scheduled to begin operation next August. This will include chemical controls, development of resistant varieties of cotton, research in insect and plant physiology, biological control and ecology, engineering and economics.

"The boll weevil is an expensive insect," he pointed out. "Actual losses from boll weevils and cost of control average \$200 million a year. Total spent for boll weevil research since the pest first appeared in 1896 has been only around three and a quarter million dollars.

"We are now in an era of technology. Emphasis has passed from the exploitation of land and muscle of man and beast to a greater dependence on management, capital, machinery and chemicals."

Speaking of trends in insect control, M. P. Jones of Washington, D.C., past president of the Entomological Society of America, said:

"Insect control has changed from hand picking of insects from plants to extensive uses of highly potent chemi-

cals. Farming today is big business. The farmer wants and must have accurate information. His insect control program is no hit or miss affair. He must not have a mistake."

Potential trouble for the heavy cotton producing delta was forecast by Dr. Marvin Merkl, USDA cotton entomologist at the Delta Branch Experiment Station.

This may be a big year for the boll weevil, he said. A record number of weevils, around 14,500 per acre, went into hibernation during the past fall. This compares with around 5,000 in hibernation in 1959.

"With an average emergence this spring, we should have an all time record number of over-wintered boll weevils to greet the 1961 crop," he said.

The entomologist cited heavy second growth of cotton plants and lack of late season poisoning as major reasons for the large number of weevils going into hibernation during the past season.

HOW THE PROGRAM WORKS

Reporting on a program designed to prevent such happenings in the future, Dr. E. P. Lloyd, also an USDA entomologist at the Delta Branch Station, said a late season poisoning program shows great promise.

"The program is still experimental and highly technical," he emphasized. "It consists of a poisoning program begun before any of the boll weevils enter diapause (a physiological change in their reproductive systems detectable only by trained scientists) and leave the fields for hibernation. The poisoning continues until a killing frost occurs."

In discussing research involving use of both chlorinated hydrocarbon insecticides and phosphates, Dr. Ted Pfrimmer, USDA entomologist at the Delta Station, reported results essentially unchanged from 1959. Cotton plants poisoned with the hydrocarbon insecticides

yielded more cotton on the first picking, but after the final picking yields from all treatments showed no significant difference.

VAPONA ACCEPTED BY USDA

Shell Chemical Company's new Vapona insecticide (DDVP) has been accepted by the USDA for use by pest control operators in homes, farms, restaurants, theaters, factories, food processing plants, park picnic areas and commercial warehouses.

Vapona controls flies, mosquitoes, wasps, gnats, flying moths, fruit flies, and other small flying insects plus cockroaches, ants, spiders and silverfish.

It controls cigarette beetles and tobacco moths—a "boon to tobacco warehousemen," says the company.

For the mushroom grower, Vapona also stops Phorid flies. Dairy and beef cattlemen can even use it as a bait on cows' faces to control annoying face flies.

Dosage is "unbelievable." For instance, a 56,000 cubic-foot volume is rendered insect-free by only one to four ounces of actual Vapona. It's effective at the low rate of only 1 to 2 grams per 1,000 cubic feet.

ETHION FOR MITES AND SCALE

Citrus growers can now use the chemical ethion as a defense against mites and scale for the first time, according to Niagara Chemical Division of Food Machinery and Chemical Corporation.

The company reported that residue tolerances have been granted and use recommendations registered for this pesticide on oranges and grapefruit.

USDA registrations show that ethion may be applied to oranges and grapefruit in Florida and Texas as a mite control and in California to curb both scale and mites. For these applications, the Food and Drug Administration will allow 1 ppm tolerances for residues of

(Continued on page 33)



Mr. Henry W. Miller, Jr., examines a Guthion protected apple grown to be sold in the company's domestic and foreign markets under the well-known

"Mountaineer" brand. Guthion so effectively controlled major fruit pests on the entire 1500 acres that two complete cover sprays were eliminated.

"Guthion so effective it eliminates two cover sprays . . . gives us substantial savings in spray costs"

Says Mr. Henry W. Miller, Jr., President of Consolidated Orchard Co., Paw Paw, W. Va.

"Guthion is the nearest thing we have ever found to a perfect insecticide"

"In 1959, we sprayed 200 acres of our apple trees using the new Guthion program and found it to be so successful that in 1960, we expanded the Guthion program to our entire 1500 acres, containing approximately 51,000 trees," Mr. Miller reports. "Not only is Guthion of particular value because of its insecticide properties, but unlike many other sprays, Guthion is not damaging to fruit finish or foliage. Our 1960 crop was one of the cleanest we have ever produced."

Guthion saves, cuts out two sprays

"We found our big savings in using Guthion was the complete elimination of two cover sprays for insect control," Mr. Miller continues. "Last year we started spraying with Guthion at petal fall. But the second and fourth cover sprays were eliminated when checks of the orchard revealed they were unnecessary because of the remarkable killing power and long lasting effectiveness of Guthion. In the past, five to seven cover sprays have been necessary for insect control in this part of the country. But with Guthion, we are now able to maintain commercial control of all major fruit insects with only four cover sprays during the season, except for one specie of mite which

under certain unusual conditions makes it desirable to combine a miticide in one or more of the regular Guthion applications.

The elimination of two cover sprays results in substantial savings by reducing the man hours previously spent by our spray crew, fuel costs and the wear and tear on \$100,000 worth of equipment. We were surprised and gratified to discover that Guthion, which is considered an expensive material actually results in lower overall insect control cost."

Guthion eliminates complicated mixing

"Spraying had become increasingly complicated due to the many chemicals formerly required to control all the major fruit pests," concluded Mr. Miller. "The old so called standard formulas we used before Guthion

often included four or more different insecticides which made precise mixing most difficult. Using one chemical, Guthion, not only simplifies our mixing problem, but at the same time provides the finest insect control we have ever experienced."

Higher profits from Guthion

Here's why Guthion means more fruit profits for you. It is the *only* single insecticide that controls *all* major fruit pests, *all* season long. Guthion alone equals or surpasses the control of any complicated combination of chemicals.

Guthion lasts longer, too . . . eliminates worry about special insect build-ups, specific timing and between cover sprays. To reduce your spray costs and get better insect control this season, use Guthion. *It works!*



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county agents, usa

By VIC CAROTHERS



County extension agents of New Mexico State University, along with Extension agents of the

Bureau of Indian Affairs, posed for a group picture during their annual conference, Dec. 5-9.

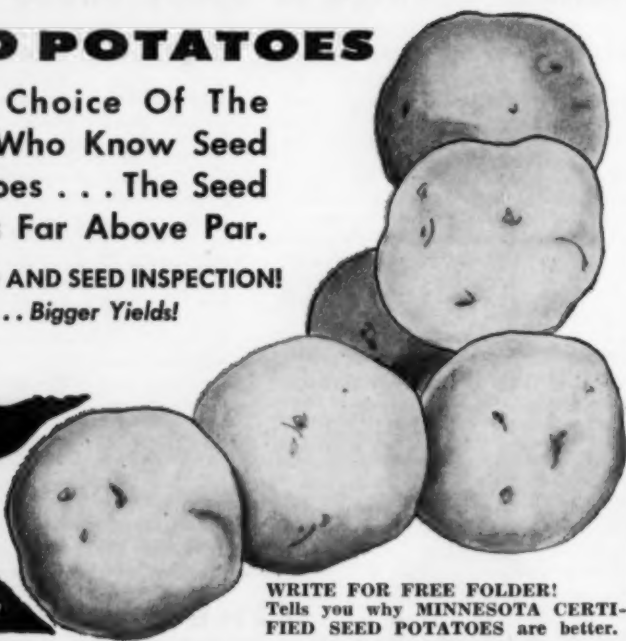
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UNIVERSITY OF MINNESOTA — SAINT PAUL CAMPUS — SAINT PAUL, MINN.

EARN WEED CONTROL AWARD

Warren K. Olson, county agent, McLean County, N. D., has been given the 1960 award of the North Central Weed Control Conference for the outstanding weed control program carried out by the Extension Service in his county.

The award included an expense-paid trip to the conference, where Olson was honored at a luncheon Dec. 14.

Among the McLean weed control activities were 7 control demonstrations on methods and results, 17 meetings to promote control operations and to enable farmers to recognize weed problems, and 5 farm tours to view results.

A former vocational agriculture instructor, Olson has been McLean County agent the past six years.



Michigan Extension Agents Association officers for 1961 are Richard Machiels, Extension director, Ottawa county, vice president; Frank Madaski, Berrien county Extension director, president, and Albert Hall, Extension director for Hillsdale county, secretary-treasurer.

KANSAS ASSN. HOLDS ELECTIONS

Gerald McMasters, Norton, has been named president of the Kansas County Agricultural Agents Association. Vice president is Herbert Bulk, Topeka, and secretary-treasurer, Roger Hendershot, Anthony.

NEW OFFICERS IN WYOMING

During the 47th annual Agricultural Extension Service conference, Dec. 5-10 in Laramie, the Wyoming Agricultural County Agents' Association elected Mel Lynch, Campbell County, as president. Wes Seamands, Albany County, becomes vice president, and Nels Dahlquist, Teton County, secretary-treasurer.



New officers of the Illinois Association of Farm Advisers are Earl Bantz, president; Carl Mees, past president; Clint Cutright, vice president, and Charles Glover, secretary and treasurer.

(Continued on page 40)

INSECT CONTROL

(Continued from page 30)

the material. Furthermore, a tolerance of 5 ppm is permitted in dried citrus pulp used for cattle feed.

BACILLUS THURINGIENSIS

The availability of Baktthane L-69 has been announced by Rohm & Haas Company. It is an insecticide wettable powder and dust concentrate based on the micro-organism *Bacillus thuringiensis* Berliner.

Baktthane L-69 previously has been sampled for experimental use as Experimental Insecticide L-69. It is now available for commercial application on a number of crops and is suggested for further experimental use on many others.

This new approach to insect control has created great interest in some areas, particularly where chemical residues on crops are a special problem. It is recognized that this organism is quite specific in its action rather than a broad spectrum insecticide.

A new registration now provides for lower application rates of Dylox for the control of beet webworm on sugar beets. The new rate is one pound per acre, just one half the former registration. Dylox, a 50 per cent wettable powder manufactured by Chemagro Corporation, at one pound per acre rate has the unique advantage of not harming beneficial insects—parasites, predators and pollinators.

TEDION FOR MITE CONTROL

An effective, new defense against mite damage is now available. The U.S. Department of Agriculture has approved use of Tedion miticide on almonds for the control of brown almond mite, European red mite, and two-spotted spider mite.

The new USDA approval opens the door to longer lasting, safer mite control on almonds according to Niagara Chemical Division of Food Machinery and Chemical Corporation, producers of the chemical. The miticide has extremely long residual life and also is harmless to humans and natural mite predators.

Recommendations under the new label claim call for treatments of 5-10 pounds of Tedion 25 wettable powder per acre in sufficient water to cover. Applications should be made when a majority of European red mite eggs have hatched and can be repeated as often as necessary up to husk split. Treated almond hulls should not be used for food or animal feed.

"POURING IT ON" HORN FLIES

The "pour-on" method of applying residual insecticide for grub control, which was reported by South Dakota State College agricultural experiment

station personnel last summer, may have possibilities for controlling horn flies as well.

William Rogoff, of the entomology-zoology department, and P. H. Kohler, of the animal husbandry department, reported on the technique for more effective horn fly control at a national meeting of the Entomological Society of America, in Atlantic City, N.J.

The technique simply involves pouring about four ounces of concentrated residual insecticide on the back of each animal. Since the horn fly spends most of its time migrating from one area of the animal to another, there is a good chance that a fly would come in contact with insecticide placed in one small area on the back.

In comparing the pour-on method with spray applications, the researchers found that effective control was maintained for a much longer period when the pour-on method was used. Rogoff emphasized that the method is still in the experimental stages and is not recommended by the Experiment Station nor by the U.S. Food and Drug Administration.

The application to horn fly control is an offshoot of an experiment set up at the Cottonwood sub-station to determine the effectiveness of the pour-on method for applying Ruelene to control grubs and to determine the amount absorbed in the blood stream. As the experiment progressed the research men wondered if the same type of an application might work for horn fly control, using toxaphene. They found that the pour-on method continued to be effective for horn fly control for at least a week—longer than spray treatments.

★ ★ ★ ★ ★

VIEWLEX OFFERS SOLUTION TO FILMSTRIP STICKING

Development of Viewlex Anti-Hesive Aperture Plates to solve filmstrip sticking has been announced by Viewlex, Inc.

The company reports it is sharing the secret of this development with all competitive manufacturers of filmstrip projectors.

The new plates are now standard equipment on all new Viewlex projectors, and are available for replacement of the older type on all the company's projectors made since 1950.

★ ★ ★ ★ ★

NEW LOOK FOR OLIVER SYMBOL

Oliver Corp., 112-year old Chicago company which recently became the wholly-owned subsidiary of The White Motor Co., has a new trademark.

Its traditional red and green shield has been changed to a keystone around a sturdier shield, with bold orange, black and white colors and a new block letter "Oliver," reports Samuel W. White Jr., Oliver president.

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CMC COLORCIRCLES come in orchid, sky blue, chartreuse, copper and gold in sizes ranging from 4" to 20" diameters. Their colors will not flake or rub off because a special process makes them a permanent part of the aluminum surface.

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Five steps to better

FILMSTRIPS

Do you know how to select the best filmstrip for your situation?

Do you know how to prepare your students for the showing? And what about filmstrip length, arranging seats—and follow-up?

By DR. EARL S. WEBB

Filmstrips are among the best teaching aids available if used properly. Most teachers who practice good judgment in the selection and use of the filmstrip prefer it to the slide, opaque projection or even the motion picture.

It is easy and simple to use, light in weight, easy to store and produces bright pictures in partially lighted rooms. A library of filmstrips may be built up over a period of years at a relatively small cost, and each film is available for use at the exact place in the lesson where it is most effective.

Most educational filmstrips produced commercially are developed by experts in the field of curriculum who are bent on serving a dual function—providing factual information in pictorial form and arousing and holding the interest of students. They are available in black and white, or color.

Color strips sell for about twice the cost of black and white. They come in either double frame (1" by 1½") or single frame (1" by ¾"); frames with legends or without. Strips without legends are either accompanied by a script to be read as frames are projected or are keyed to a recording (sound filmstrips). Filmstrips to be used with a record player have a "beep" signal to indicate a change of frames.

If properly used, one kind is about as good as the other. Except where color is a necessary part of the picture, black and white produces as much learning as color; however, color tends to dramatize the picture.

Probably the most popular are the

ones with printed legends on each frame. They are the easiest to use; a record player is not required. Printed scripts have a way of becoming lost and are often difficult to read in a darkened room. However, sound filmstrips have a definite advantage in that the information is not so readily misinterpreted. Likewise, a subject may be viewed with which the teacher is not necessarily familiar, such as the use of new chemicals or methods of performing skills, and the like.

However, these advantages may be lost in that it is almost impossible for teachers to insert remarks during the presentation which fit a situation. Likewise, students lack an opportunity to ask questions.

Filmstrip projectors are simple to operate, relatively inexpensive—usually costing less than \$100; they require little storage space. They may be operated by a student, leaving the teacher free to use a pointer at the screen.

Basic requirements for a projector to be used in average-sized rooms include at least a 750 watt size, a fan which will operate with the projection lamp on or off, and easy accessibility for changing bulbs. A remote control unit is convenient, but not a necessity. Most projectors on the market today have good lenses and means for adjusting height and angle. A carrying case is a must for transporting and storing.

WHERE CAN YOU GET THEM?

Filmstrips may be obtained from a variety of sources. Hundreds are available without cost from commercial companies, institutes, and foundations.

While many are excellent aids, it is necessary for teachers to exercise judgment as to the amount of objectionable advertising and/or biases that may be included. The best single compilation of such films known to the writer is *Educators Guide to Free Slidefilms*, published by the Educators Progress Service, Randolph, Wisconsin—an annual publication that classifies sponsored filmstrips by sponsor, title, subject, and description.

Most publishing companies have filmstrips for sale; many supplement texts. They may also be rented from university film libraries. Some commercial companies specialize in developing educational filmstrips. Generally, if a teacher wants a filmstrip on a particular subject, the only problem is to determine which one will assist in reaching the desired teaching objective.

To enhance learning to the maximum it is necessary to use the following step by step procedure.

1) Select a film that is adapted to the subject being taught. It is not safe to assume students can see relationships which are inferred. It is doubtful if many students will be able to understand the relationship between human and livestock nutrition if a film is shown on the principles of feeding beef cattle. Certainly, if a class is studying the feeding of swine, a filmstrip which shows the principles of feeding swine should be used.

2) Prepare students by informing them of the subject of the film, what they are to look for and how they will benefit from seeing it. This step implies that the film has been carefully previewed by the teacher. Embarrassment often results from an inadequate knowledge of a film's contents.

The writer recalls a student teacher who showed a slidefilm on plant nutrient deficiencies to an advanced class. When the first frame was projected on the screen neither the name of the plant nor its deficiency was on the frame. The student teacher tried to identify the plant and deficiency depicted. After a few futile efforts he gave up in despair and remarked when each succeeding frame was projected:

"Boy, you can sure tell something is wrong with that plant." The class learned practically nothing about plant nutrient deficiencies, but the student teacher learned a dear lesson about using projected materials.

Perhaps second in importance to careful previewing is that of informing students why they are being shown the film. Certainly, they have a right to know what they can expect to see. An experience is much more impressive if the element of expectation is present. It is often desirable to work out a brief outline or guide with the class before

(Please turn to page 39)

SPONSORED

Research BULLETIN

COUNTY AGENT
VO-AG TEACHER

ARC WELDING Farmer's Time and Money Saver

SPONSORED BY THE LINCOLN ELECTRIC CO.

CLEVELAND 17, OHIO

ON-FARM WELDING ... EFFICIENT FARMING

Over several years information has been gathered from all over the country — and from all sizes of farms — which points up the tremendous increase in efficiency of farming operations that is achieved by proper use of arc welding. This report summarizes the major areas where farmers can take advantage of these savings and shows how they will benefit.

QUICK REPAIRS AVOID DOWN-TIME

By far the largest use of welding on the farm is that of repairing equipment. Virtually all farm equipment is manufactured from iron and steel parts. When a part breaks, the most efficient way to repair it, if not the only way, is by arc welding.

HARDSURFACING ... FOR LONG LIFE

Every crop farmer knows how soil wears away his earth-working tools and dulls them into uselessness. He throws away a share that weighs 10 pounds when less than 1 pound has worn away. By adding less than $\frac{1}{4}$ pound of hardsurfacing to a new share, the farmer can retard wear and extend its life 3-5 times.

WELDED PROJECTS CUT EQUIPMENT COSTS

Most farmers have a bit of mechanical genius which they put to good use in building equipment to help them work faster and easier. An arc welder lets them work as easily with steel as with wood. Scrapped equipment provides the raw materials for hundreds of useful home-built tools and implements.

COMMON MISCONCEPTIONS

Two common incorrect ideas turn up in interviews with farmers:

1) Welding is difficult. UNTRUE. The average farmer can learn to weld with a few hours of practice.

2) Equipment is expensive. UNTRUE. High quality welders are available for around \$125 delivered anywhere in the country.

INSTRUCTIONAL AID FOR TEACHERS

The Lincoln Electric Company, Cleveland, Ohio, has long recognized the growing need of the farmer to preserve his profits and save time by doing his own welding repair and hardsurfacing work. They also realize the personal satisfaction and increased farming efficiency that result from a farmer's making some of his own new tools and equipment. For these reasons, this company has made available complete information on how to run a 5-week welding course. Teachers will find this invaluable if they plan to hold welding classes. For more information about this course and other available printed literature from this company, see the back page of this report.

Arc Welding Is the Key to Efficient Farm

REPAIR WELDING

SURVEYS show that the greatest use of farm arc welders is on repair work. When there is a pebble lodged in the works of a harvesting machine, a wheel jammed in a chuck-hole, a sudden tractor yank on a mud-stuck manure spreader, a large hidden stone in front of a spring-tooth harrow—someone is in for trouble.

Equipment failures occur whether the farmer has a welder or not. To the man without a welding machine they mean trips to town and costly repair bills.

By contrast, farmers with their own welders make their repairs quickly and inexpensively. The average job consumes less than a dime's worth of electrodes.

Compare this with any welding shop's bill. Minimum charges of \$2 to \$5 are common.

Many farmers owning welders report that their savings in welding repair bills alone amount to over \$100 per year.

Also consider the farmer's time. Frequently, in order to get a broken part repaired, he must dismantle a major part of a machine . . . take it to town . . . wait for the repair to be made . . . and return to the farm, where he still has to reassemble the machine.

With a welder he can make the repair right on the machine in his own yard.

Welding is equally important to both large and small farms. The small farmer has older equipment which is prone to breakdowns. He has to make his machinery "last another year."

On the other hand, the larger farmer has a greater number of machines which increases opportunity for breakdowns. Further, these machines are more expensive and more carefully scheduled for use. Down-time on them is more expensive.

It is unfortunate but true that machinery never breaks down while it is sitting in the shed. It fails when it is being used—when it is needed most. When this happens to harvesting equipment, the ability to make the repair quickly and get back in the fields while the weather is right is of utmost importance.

Thus, the importance of repair welding is three-sided. It

- 1) Reduces repair bills.
- 2) Saves time.
- 3) May determine whether a crop is harvested in time, or lost.

CULTIVATOR this tractor was pulling hit a hidden stump, breaking tool carrier arm. Using his welder, farmer repaired arm, was back in the field quickly.



KANSAS farmer quickly repaired broken spring-tooth harrow with welder. It takes little time to learn enough about welding to make simple, but important, repairs.



HARDSURFACING on this cultivator sweep will extend its life 3 to 5 times. Hardsurfacing materials cost only few cents, can be applied in 10-15 minutes.



ntFarm Equipment Maintenance

HARDSURFACING

Farmers who hardsurface their own plowshares buy only one-fourth as many shares as those who don't hardsurface. And hardsurfacing is equally valuable on other parts too.

Hardsurfacing is just like any other arc welding job except that instead of joining two parts together, the weld metal is deposited as a layer on the wearing surface. The high alloy content of the hardsurfacing deposit retards wear and makes parts last longer . . . 3 to 5 times longer.

Hardsurfacing is a real money saver. Most all of it can be done in the winter or other slack times. As a time-saver, more acres can be plowed without stopping to change shares . . . if they were hardsurfaced before use.

Here are just a few farm items on which hardsurfacing can effect real savings: ensilage cutters, harrow discs, draw bar pins, cultivator sweeps, dozer blades, plow points, grouser bars, and many others.

WELDED PROJECTS

Interviews show that after a farmer gains confidence in his ability to weld, he makes all kinds of laborsaving devices for his farm.

Much of this activity is in making attachments for his present equipment—to do special jobs or to widen their usefulness. These are generally easy to make and limited only by the extent of his ingenuity.

Frequently projects involve the complete fabrication of major equipment, such as: cattle squeezes, hog feeders, hay elevators, trailers, and many others.

These projects are usually tailor-made to suit the individual farmer's needs with material from the scrap pile and junk yard. When completed, these very useful items seldom have cost the farmer more than 25% of the new equipment price.

TURN TO NEXT PAGE FOR COMPLETE DETAILS ON
THE LINCOLN SHORT COURSE IN ARC WELDING.
INSTRUCTION BOOKS ARE PROVIDED AT NO COST.



WAGONS, such as this one made by Ohio farmer, are popular welded projects. They can be built to meet farmer's own needs and usually cost far less than purchased wagons.



HOIST is typical of laborsaving devices built by farmers. Little spare time, few pieces of scrap or purchased steel parts, some ingenuity, and welder are all that is needed.



ARC WELDED projects beautify the home. Using their welders, farmers build many useful and decorative items such as lawn furniture, swings, slides, ornamental iron work.

SHORT COURSE IN ARC WELDING

As more and more farmers realize their need for welding, more will turn to you for help in learning to weld.

The Lincoln Short Course in Arc Welding is a five-night course which can be put on by any teacher who can weld reasonably well and who will follow the teaching guide.

Tested and Proved

The methods and techniques involved in this course were developed over a two year period of experimentation and revision. Since then, in the ensuing three years, over a thousand teachers have used this course to teach nearly 100,000 adult farmers how to weld.

Lincoln Supplies Instruction Books FREE

The Lincoln Electric Company will provide, free, to the instructor one "Teaching Guide" and, for each student, copies of "The Lincoln Pocket Guide to Arc Welding" and diplomas. "The Pocket Guide" is written to be used with the "Teaching Guide" for the Short Course.

What You Will Have to Do

1) Provide a school shop with 100 ampere service of 230 volt, single phase power.

2) Get students to attend, and schedule five nights, 2½ hours each, once a week.

3) Arrange for welding machines (at least one machine for every four students), electrodes, and equipment. (See below.)

4) Teach the class.

Welders May Be Provided

In areas which are serviced by active Lincoln welder dealers, the extra welders needed to put on the course may be loaned by the dealer. He may also provide a few welders which a limited number of students could take home with them and use for about 3 weeks to practice.

When a Lincoln dealer cooperates with a teacher as above, he will *not* attend the classes and will not solicit sales. He asks only that you do not allow any welder salesmen to be there.

Complete Details in Teacher's Guide

The "Teaching Guide for the Lincoln Short Course in Arc Welding" gives complete information on setting up and running the course. It also gives complete class-by-class instructions on what to teach and how. Write for it now—it's FREE.

PETE SAWYER
THE LINCOLN ELECTRIC COMPANY
CLEVELAND 17, OHIO

Please send me the items I have checked below. My name and address are:

Name

Occupation

Address

City State

() _____ free copies of this Research Bulletin to give to my neighbors or students.

() More information about the "Lincoln Short Course in Arc Welding" including one free copy of the "Teachers Guide."

() One free copy of the 80-page book "Farm Projects in Metal."

() As far as I know, there is no Lincoln Welder dealer within 20 miles of here. I feel that the man I have listed below would make a good Lincoln dealer in this area.


He is

His business is

Address

City State

AV-173



**clip
and mail
coupon
today**

FILMSTRIPS

(Continued from page 34)

showing a film. Then short notes may be taken for discussion purposes; however, extensive note taking should be discouraged.

3) Allow adequate time for showing. The mind is not a sponge and knowledge is not a low viscosity liquid. The time needed can be determined during the preview; however, the teacher may have seen the film before, and will not need the amount of time required by students.

Also, students should be encouraged to ask questions during showing. It may be necessary to turn the film back a few frames to clarify ideas. All these things take time; therefore, it is advisable to show the film early in the class period.

Never use a filmstrip that can't be shown in one class period, including follow-up.

4) Arrange physical facilities to enhance the comfort of the group. The room should be darkened just enough to allow a sharp image to be focused on the screen. If the room is too dark, the glare from the screen tends to cause viewers to become sleepy. The tempera-

ture should be comfortable. Members of the group should be seated no closer than two times the width of the screen and no farther than six times its width. Seats should be arranged so viewers will be within a thirty degree area to the right or left of a line ninety degrees from the center of the screen as shown in the drawing.

5) Follow up the film immediately to apply the instruction. Follow-up activities will depend on the film's contents; however, a discussion generally succeeds the presentation to answer any questions which students may have. In addition, teachers should ask questions pertaining to the key points shown and ask students to suggest applications to their personal situations. If the lesson deals with manipulative skills, test students for performance or speed. Occasionally a written test is effective, especially in determining the amount of factual information gained or a change in attitudes. Reshowing of one or more frames may be desirable. Can students use what has been taught? *This is the only real test of effective teaching.* If they cannot they have not learned.

Dr. Earl S. Webb is in teacher education, University of Missouri, Columbia.

NEW DAY

(Continued from page 21)

staff helped to complete a survey last summer to determine needs for extra space and facilities for campers and for tourists with trailers. Businessmen are much interested as preliminary studies show that these tourists will stay longer than motel dwellers, if facilities are right.

"DEPTH TRAINING" FOR AGENT

For more technical assistance in the hotel, motel and restaurant fields, Heirman arranges for visits from specialists based on campus. Each year, he and several key tourist and resort operators attend an annual M.S.U.-sponsored institute to keep posted on latest developments in business management techniques and promotional programs.

Before he attempted to service the tourist and resort operators, Heirman took a concentrated training session in which state specialist, Dr. Robert McIntosh, worked with a few county extension workers several days. It was a concentrated depth-training approach which enabled the trainees to gain a maximum amount of information regarding tourism. Since the completion of the new five-mile Mackinac Straits Bridge, more tourists are being lured to the U.P. Boosting tourist business is seen as one of the quickest methods for improving the area's over-all economy and helping farmers as well as all other businesses that depend largely on local markets for products and services.

The benefits of working closely with all segments of the area's economy were confirmed a year ago when Heirman stopped by to get acquainted with a Texan who had just moved to Michigan to establish a stockade fence factory. Heirman could hardly believe the good news—the factory manager needed thousands more cedar posts. Within days he had all he needed to employ several more men in the plant and several farmers were supplementing their winter time income by cutting and peeling cedar posts.

James W. Gooch is information specialist, Michigan State University, East Lansing.

★ ★ ★ ★ ★

WHAT'S COMING UP

January 31-February 1—Agricultural Industries Forum, College of Agriculture, University of Illinois, Urbana.

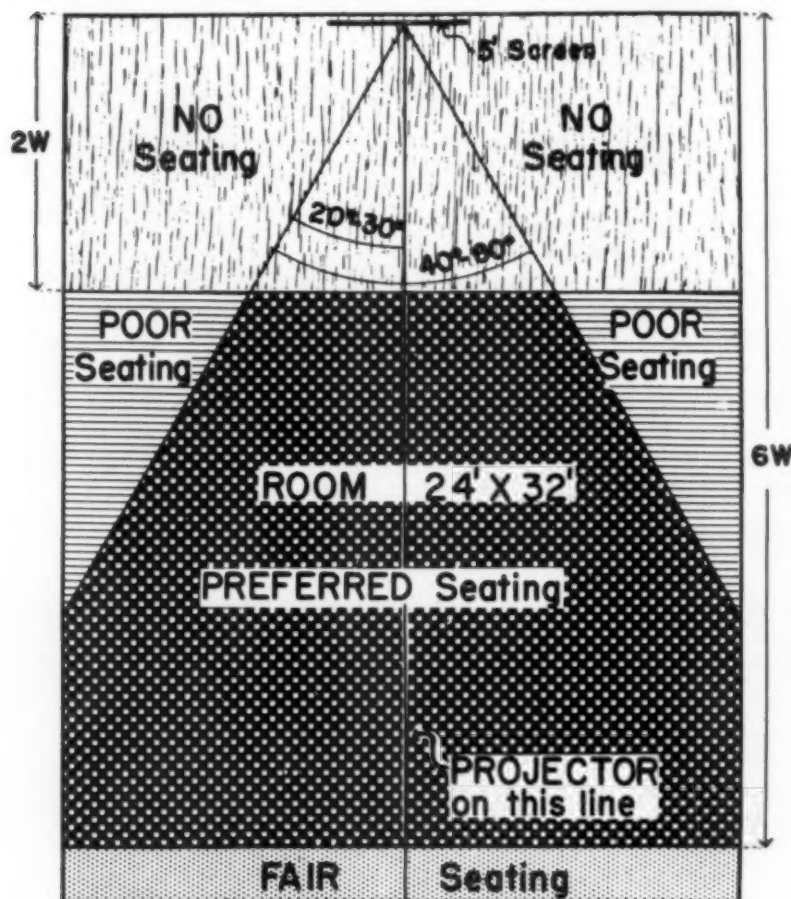
February 1-2—Annual meeting, Soil Science Society of North Carolina, Williams Hall, North Carolina State College, Raleigh.

February 13-14—Farm Forum, Spokane, Washington.

February 22—Broiler Housing Symposium, Center for Continuing Education, Athens, Ga.

March 4-11—National 4-H Club Week.

April 22-28—National 4-H Club Conference, Washington, D. C.



W= Width of screen—5' in this drawing

Viewing angle and distance

county agents, usa (Continued)

NEW NEVADA OFFICERS

Ferren W. Bunker, Clark County agent, was elected president of the Nevada Association of County Agricultural Extension Agents at a luncheon last Dec. 15 in Reno.

Serving with him are Rollie Weaver, Douglas County agent, as vice president, and Mrs. Mary Coy Stanley, Clark County assistant home agent, as secretary-treasurer.

ALL IN AN AGENT'S LIFE

Rogers County, Okla., Agent Bill Whitenton included this terse tale in his monthly report:

"After 16 years in county agent's work, last month I got dog bit for the first time. The next day or so I checked back with the farmer on another matter and mentioned the fact that I would like for him to keep track of the dog.

"The farmer reported back in a few days that the dog had been quite sick, but was now doing fine."

AGENT HELPS LOW-INCOME FARMERS RAISE PROFITS

By following soil test and other college recommendations, a group of farmers in Greene County, Tenn., working

with J. O. Cunningham, county agent, increased their production of burley tobacco by 438 pounds per acre above their previous 3-year production average.

To determine how low-income farmers in his area could increase their profits, Cunningham went to the ASC Office and selected nine farmers who had a history of low production—each from a different community.

He next called on each farmer to discuss the demonstration program. Soil samples were taken and sent to the University of Tennessee Soil Testing Lab in Nashville.

Fertilizer recommended by Joe Matthews, University of Tennessee soil fertility specialist, was used. All college recommendations for tobacco, from beginning to end, were followed, with special emphasis on rotation and fertilization.

The result? Eight of the farmers ended up by making more profit per acre, even though they had a greater per acre investment. One demonstrator's crop was heavily infested with Black Shank, which reduced the yield.

Average production for the demonstrators was 1886 pounds of burley per

acre, compared to their previous three-year average of 1448 pounds. Average production in the community remained about the same, 1818 pounds.

MAINE SCHOLARSHIP FUND

The Maine Extension Association scholarship fund now totals \$3,673. Scholarship awards are made from the interest earned by the fund. Since 1932, when the fund was started, total awards made to 27 students have amounted to \$2,750, reports Richard C. Dolloff, county agent leader for the Cooperative Extension Service at the University of Maine.

The awards went to 15 boys and 12 girls, representing almost every county of Maine.

★ ★ ★ ★ ★

FROM FUN TO PROFITS

Who has not bobbed for apples floating in a tub of water! But did you ever think that this fun stunt would ever lead to a profitable marketing discovery? It has done just that in Michigan.

Fruit growers and Extension and research marketing specialists, working together, came up with a simple answer to a pertinent problem. It now appears that the new practice of "floating off" apples removed from storage will be quite successful in reducing labor costs. Apples are re-sorted and quickly checked for quality with a minimum of handling and bruising. Such fruit can be advertised as washed fruit. This may become a more important feature as the years roll by, says Frank Madaski, county extension director, Houghton county.

NEW FES POST FOR AITON

Dr. Edward W. Aiton has been named assistant administrator for programs, Federal Extension Service, according to an announcement by FES Administrator Paul V. Kepner. The post had been held by Gerald H. Huffman, who recently became deputy administrator.

New head of 4-H Club work is Mylo S. Downey, former assistant 4-H director.

CIVIC CLUBS COOPERATE

Civic clubs play a big part in stimulating projects of farm youth. This is especially true in Chowan county, North Carolina, where the Edenton Lions Club and Rotary Club have been helping to furnish incentive to young people for more than a decade.

The Lions Club sponsors a corn growing contest every year for 4-H members, and the Rotary Club sponsors a peanut growing contest.

These contests have helped to increase the corn and peanut yields in Chowan county, but even more important, they have increased the number of good citizens by encouraging participation in 4-H club work.

COUNTY AGENT AND VO-AG TEACHER

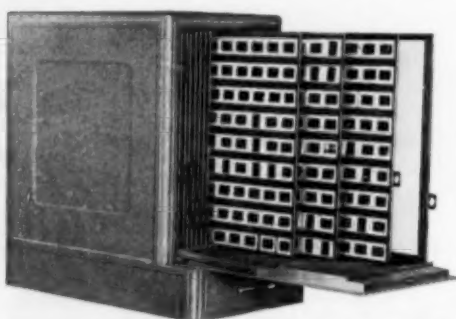


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slides properly stored—cylinder-type key lock on door.

The Multiplex Cabinet shown above holds 2340 slides, 2" x 2" . . . or 780 slides, 4" x 3 1/4" . . . or some of each. Door opens down to provide shelf. Spacious utility drawer in base. Smaller and larger sizes, and other models, are available. For more complete information, use the coupon below.

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LATEST FEEDING METHODS CAN HELP YOU INCREASE BEEF-CATTLE PROFITS

Important trends in beef-cattle feeding include the use of (1) low-roughage, high-energy diets, (2) fermentation feed supplements, and (3) additional Vitamin A fortification. These practices, and others that contribute to the more efficient use of feed, are vitally important when one considers that feed represents up to 75% of the cost of finishing beef for market.

To improve your feeding program and to help maintain herds in good health, Merck now offers three products: DYNAFAC... STABIMIX A... and AGROZYME. Read about them here. Then, for further information, or to place your order, contact your feed supplier or Merck Feed Products Representative. Merck Chemical Division, Merck & Co., Inc., Rahway, N. J.



DYNAFAC Cuts feedlot bloat and scours

In many parts of the country, feeders are switching to the use of low-roughage, high-energy rations from start to finish during the feeding period. Unfortunately, the use of such rations frequently causes bloat, founder, scours... and lost profits!

Low roughage... high concentrate... no bloat!



The addition of DYNAFAC to high-energy rations effectively reduces the incidence of bloat. The first "chemobiotic" developed for beef-cattle rations, DYNAFAC helps keep cattle on feed, aids in increasing growth and feed conversion, and can help produce lighter-weight cattle faster... the kind that produce more desirable, nonwasty primal cuts. DYNAFAC is a feed additive you can't afford to pass up! It works well with corn, barley or milo-based rations and can return as much as one dollar for every dime invested!

Recommended use levels: For feeder cattle—1.5 to 2 grams per head per day. For beef calves—.9 to 1 gram per head per day... a cost of less than 1¢ per day!

STABIMIX® A To help prevent or treat Vitamin A deficiency

Feedlot rations, which do not contain newly-harvested top-quality grains, can lose much of their vitamin A content before reaching the feed bunks. This lack of vitamin A can weaken stockers' and feeders' resistance to pinkeye, respiratory infections and diarrhea. What's more, animals grazing on poor range or pasture... especially during dry spells... may also suffer from A-avitaminosis. Cows on vitamin A-deficient rations may abort or drop premature, blind or weak calves.



Losses due to vitamin A deficiency can be prevented! Remove doubts about the vitamin A content or availability of the feedstuffs you use. Give cattle full benefit of all the vitamin A they need by using STABIMIX A! It is economical to use and stable under all conditions.

Recommended use levels: For cattle of all ages—1,000-2,000 units per 100 pounds of body weight daily. For cows during last 2 months of gestation and first 3 months of lactation—15,000-20,000 units per cow per day.

REGISTERED TRADEMARK OF MERCK & CO., INC., FOR A VITAMIN A FEED SUPPLEMENT.

AGROZYME® For top weight-gains and feed efficiency

This modern fermentation feed supplement, when added to beef-cattle fattening rations, increases the nutritional value of low-moisture corn and western barley. The use of AGROZYME can result in greater liveweight gains and increased profit margins over feed costs. That means a greater return for each feed dollar you invest!

Growth responses stimulated by AGROZYME have been recorded as high as 24%... feed savings as great as 12%... and extra profits as high as \$10.60 per finished steer! Profit-building results like these have been substantiated in experiment stations and commercial feedlots across the country.

AGROZYME belongs in your feeding program. Why not set up your own split-lot trials and see for yourself?

Recommended use level: .0075 pounds per head per day.

REGISTERED TRADEMARK OF MERCK & CO., INC.



Iowa vo-ag's took a small engine short course last summer. They found that improving their teaching techniques helped them develop the new farm mechanics philosophy:

THINK SEE and DO!

By W. FOREST BEAR



Keith Carlson, vo-ag instructor, Cylinder, Ia., and Wayne Hoskins, ag. ed. senior, are about ready to test-run their four stroke cycle Clinton engine.

A small package can contain a wealth of information. This was the case in a special summer school course offered last summer for vocational agriculture instructors at the agricultural engineering department, Iowa State University.

The small package was a gasoline en-

gine of the type found on lawn mowers, elevators, hay bailers, sprayers and pumps.

A survey conducted by one Iowa vocational agriculture instructor revealed an average of 4.6 gasoline engines per farm for the boys enrolled in vocational agriculture. Another instructor reported an average of 3.2 engines per farm in a similar survey.

Regardless of how you analyze the situation there are "MANY HORSES" on the farms today in those small packages.

Vocational agriculture instructors are being called upon to stress the service, repair and maintenance of these



Francis Abel, vo-ag instructor, West Branch, Ia., and Myles Beitz, vo-ag instructor, Muscatine, Iowa, make final adjustment on a four stroke cycle Wisconsin engine.



William Hamilton, vo-ag instructor, Anamosa, Ia., assembles a two-stroke cycle Clinton engine.

COUNTY AGENT AND VO-AG TEACHER



Voc-ag instructors enrolled in the special summer school course on small gasoline engine service, repair and maintenance are shown at work. The course was offered by the Agricultural Engineering Department, Iowa State University.

small engines in their farm mechanics classes. This need prompted offering the special course at the Agricultural Engineering Department, Iowa State University. Theory of operation, repair procedures, servicing schedules, visual aids, and teaching techniques were the areas discussed and studied during the summer session.

BASIC THEORY STUDIED

Basic problem areas studied were as follows: 1) two stroke cycle principles, 2) four stroke cycle principles, 3) firing orders, 4) crankshaft design, 5) piston style and design, 6) piston ring types and designs, 7) carburetion systems, 8) battery and magneto ignition systems, 9) governor control principles and 10) lubrication systems.

An understanding of these problem areas is essential before teaching a unit on gas engines. Both two and four stroke cycle gasoline engines were disassembled and studied when discussing these problem areas.

Use of the small engine for instructional purposes required a more limited number of mechanics tools as compared to an instructional program using larger, multicylinder engines.

Other advantages favoring the small engines as an instructional aid are as follows: easier to handle from the weight standpoint; less shop time needed to disassemble and assemble the engine; repair parts are more economical; the engines are easier to obtain; and less shop workbench and storage space is needed.

Many school budgets require wise purchasing of shop tools on the part of the shop instructor. Securing the necessary tools to perform the more common

repair jobs was another phase of the instructional program. Tool lists were prepared by one group in the class. Demonstrations were given on the correct techniques for use of the common tools.

DEVELOPING RELATED LESSONS

Development of an appreciation and interest in accurate measurement and close tolerances was easily obtained as the component parts of the engine were studied. This interest promoted a lesson on reading of the micrometer and use of the feeler and gap gauges.

The need for mixing of gasoline and oil together for use in the two stroke cycle engine was a natural entry for a lesson on the types of and tracing of the oil system in the engine.

Use of straight mineral oil in two stroke cycle engines and a detergent oil in four stroke cycle engines opened another problem area for study.

Discussion of the reports in the two stroke cycle engine and the valves in the four stroke cycle engine led to the importance of the proper valve timing of an engine.

INSTRUCTIONAL METHODS

These and many other problem areas were waiting to be studied and discussed as the vocational agriculture instructors explored the engine during disassembly and assembly. The problem areas studied blend into almost any instructional method; being equally as effective in the problem method of teaching as the unit method of teaching.

Trouble Shooting: Trouble shooting techniques were developed during the assembly of the engines. When there

was an absence of a spark, the carburetor flooded, or the engine would not idle another natural teaching situation developed.

Teaching Aids: Film strips and slides from educational and commercial sources were evaluated by the vocational agriculture instructors. Cut-away models and charts were evaluated too as related to their educational value for teaching each specific problem area. Each educational aid employed must help facilitate and promote a better understanding of the essential knowledge of each problem area; if not, another aid or technique should be used to better utilize the instructional time.

Teaching outlines for the home vocational agriculture departments were also planned.

Goals: Farm mechanics is considered by many as a *see and do* course. Problems are not studied but only discussed in passing. Shop teachers, as well as other teachers, need to establish a goal, create interest, sort out the essential knowledge related to the problem area, provide time to *study* the problem in order to develop a better understanding and satisfactory solution to the problem.


Improving teaching techniques will help develop the new farm mechanics philosophy:

THINK,
SEE and
DO!

W. Forest Bear is an instructor in the agricultural engineering department, Iowa State University, Ames.

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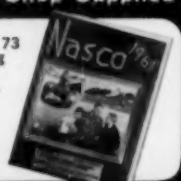
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ag leaders washington

(Continued from page 12)

and labor while a congressman these past few years, than he did in matters pertaining to water development, and so on.

If the Kennedy government doesn't want to control production, and insists on raising price supports—what, then, does it think it can do about the surplus problem?

FOOD FOR PEACE

The answer to this is not hard to find. The Kennedy people believe that a big upgrading of the food-for-peace program can do a lot toward solving the problem. They plan to tie farm programs right in with foreign policy. That is, they want to give surpluses away, or sell them at bargain rates, to the needy countries of the world as a means of bolstering them against communism. They see the big agricultural productive capacity of this country as

the Number 1 weapon against communism. In this approach, they differ from Benson who was interested mainly in getting rid of the surpluses to cut down on government costs.

Some of the Kennedy advisers even talk in terms of finding out what the hungry people of the free world need, and how much, and then asking farmers to raise it. If they can do this, they believe farmers would have to increase production, rather than cut it down.

Well, what do experts think of the idea of using the food-for-peace program as a major tool to conquer the surplus problem? There is divided opinion on this, but most we've talked with (both Republicans and Democrats) are inclined to scoff at the idea. Certainly, they say, the U.S. could get rid of lots more surpluses—but it will take a lot more than foreign disposal to keep production in line with demand.

The domestic needy won't be left in the cold, say the Kennedy-Freeman people. They predict a food stamp plan this year, and stepped-up school lunch and special milk programs.

vo-ag news

R. E. CAMMACK RETIRES

On December 31, Dr. R. E. Cammack, Alabama director of vocational education, retired after a 42-year career in vocational agriculture.

Dr. Cammack was responsible for organizing the Alabama Association of the Future Farmers of America as part of the national organization and served as state advisor for 16 years.

TEACHERS COLLABORATE

Jim Hamilton, vo-ag teacher at Audubon, Iowa and W. R. Bryant, vo-ag teacher, Canton, South Dakota, are responsible for a textbook receiving wide acceptance throughout the United States. It's entitled, "Profitable Farm Management." Any teacher who has not put this book to work yet can surely get complete details from either of these fine teachers.

TWELVE "100% ASSOCIATIONS"

One-hundred-per-cent membership in the National Vocational Agricultural Teachers Association has been reported by twelve associations: Nevada, Oregon, Wyoming, Arkansas (C), North Dakota, South Dakota, Missouri, Alabama (W), Florida (C), Georgia (C), South Carolina (W) and the Virgin Islands.

NEW BOOK BY ORE. TEACHER

"Practical Livestock Disease Control" is the title of a new book by Edward R. Griggs of Gold Hill, Ore. Priced at \$1.50 each, copies can be ordered from Mr. Griggs.



Nebraska Chairman of the Agricultural Hall of Fame Marvin Russell (center) accepts \$500 check from Ronald Ganzel, state secretary-treasurer of the Nebraska Vocational Agriculture Association. Norval Utemark, West Point vo-ag instructor and District III NVATA chairman, witnessed the presentation, made at the Nebraska State Fair.

IDEA

you can use

PEGBOARD BULLETIN RACK

Middlesex county, Massachusetts, Extension Service believes in keeping residents informed and up-to-date when it comes to bulletins. A large pegboard, equipped with pegboard fixtures, makes a neat rack for bulletins. It is prominently displayed on a wall facing the visitor's entrance.

As H. Thurson Handley Jr., one of the Middlesex county agents puts it: "We keep it seasonal and up-to-date with bulletins for both farmers and homeowners. It saves going through a whole lot of bulletins."

Visitors can help themselves to a maximum of five bulletins. This method not only keeps the public informed on current problems but acts as an Extension office time saver.—Charles Stratton, Windham, New Hampshire.

COUNTY AGENT AND VO-AG TEACHER

1961 HERBICIDE REPORT

(Continued from page 24)

pre-emergence applications of Zytron plus dinitro on soybeans. A definite growth stimulation over and above the response expected from weed control was obtained with soybeans.

Zytron also appears to be effective for the control of some annual weeds and grasses in ornamental nursery plantings and forest tree nursery seedling beds.

CLEARANCE FOR AVADEx

A new farm chemical that offers a long-sought practical solution to costly wild oat infestation in 21 million acres of northern United States cropland will be available to growers in time for the 1961 planting season.

Trademarked Avadex, the product is a pre-emergence herbicide developed by Monsanto Chemical Company and introduced last year in Canada where the wild oat poses the nation's number one weed problem.

The compound has just been given the U. S. Department of Agriculture's full clearance for use in wheat, flax, sugar beets, barley and peas, it was confirmed today by Dr. Lawrence H. Hannah, manager of herbicides developed for Monsanto's Agricultural Chemicals Division.

EPTAM AIDS POTATOES

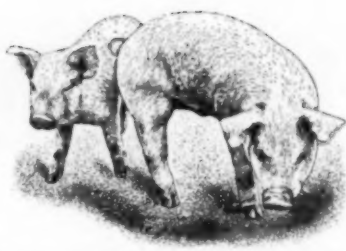
The results of three years research on the control of nutgrass in potatoes was discussed at the Northeastern Weed Control Conference by Dr. E. M. Rahn of the University of Delaware. The chemical used in this research was Eptam. Application of this herbicide at varying times and rates as a spray and in granules was discussed. The data indicated that Eptam could be applied at any time before planting or just after drag-off. Sprays and granules were equally effective.

Dr. Rahn stated that none of the Eptam treatments had any harmful effects to potatoes with regard to emergence, plant vigor, yields or per cent dry matter in tubers.

CARBYNE LOOKS PROMISING

More bad news for wild oats came with the news that Carbyne, a post-emergence spray, was used successfully last summer on more than 16,000 acres of wild oat-infested cropland in the country.

Harvest results, correlated by the staff of 30 field workers who followed all Spencer Chemical's farm trials, indicate that the over-all average yield increase in the U. S. from Carbyne-untreated crops was: Spring wheat—8.8 bushels per acre; Durum—9.3 bushels per acre; and Barley—9.1 bushels per acre.



In winter, anemia can stunt a whole litter

Every successful hog raiser is always on the lookout for ways to make a few more dollars per litter. He knows, for example, that pigs farrowed during the winter months are cut off from pasture and may be anemic and stunted unless he gives them some form of iron for healthy growth. The point is particularly important right now, with winter approaching and 4% more pigs expected.

But iron preparations are not all alike. Sometimes only 40 to 50 per cent of an iron product given to protect against anemia is absorbed into the blood—or the product may be excreted so fast that the pig never gets a chance to use the iron at all. At Michigan State University, a study was carried out to evaluate a number of iron products used to safeguard pigs against anemia. It was found

that Armidexan 75 was the *most effective* of the ten different injectable iron products tested.*

It's the *rapid absorption* of Armidexan 75 that largely explains its superiority over other injectable forms. It can be injected straight into muscle and is completely absorbed in 2 days. No staining, no damage. One shot is enough to keep pigs' blood iron-rich, enough to see them through the critical suckling period, enough to avoid anemia-stunted litters and get better pigs to market faster and cheaper.

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booklet-bulletin reviews

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Full color, 16 mm movies, 35 mm slide films, and education bulletins will bring the story of agriculture into your classroom or meeting. They're available free from Dekalb Agricultural Assoc. To find out details,

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2—FILM CATALOG

United World's catalog lists more than 200 films covering all phases of agriculture. Ideally suited for meetings, demonstrations or the classroom. For your copy of *Films on Agriculture*,

CIRCLE 2 ON SERVICE CARD

3—NEW PROJECTOR

If you're not at the movie, you don't have to listen to it . . . when you use a Eastman Kodak Pageant Projector. The good audio system and quiet operation of this projector help to maintain school atmosphere of quiet order. For more details, just

CIRCLE 3 ON SERVICE CARD

4—STORY OF GYPSUM

Eight major uses of agricultural gypsum are detailed in this entertaining and informative sound film, available without charge from United States Gypsum. Includes numerous valuable tips to use for improving crops and soils. For further information,

CIRCLE 4 ON SERVICE CARD

Chemicals

5—INSECT CALENDAR

A "must" for every grain storage man is the Grainman's Insect Calendar published by Douglas Chemical Company. This handy calendar contains full color insect-identifying illustrations and corrective fumigation information. For your free calendar, just

CIRCLE 5 ON SERVICE CARD

6—USEFUL TOOLS

The facts about anhydrous ammonia—how it is made, when it should be applied, what will it do for specific crops, and why it costs less—are presented in a handy booklet by Grace Chemical Company. Also available is a booklet on urea fertilizer which includes tables showing per acre fertilizer recommendations for specific crops by states. To get copies of these booklets,

CIRCLE 6 ON SERVICE CARD

7—NITROGEN CYCLE CHART

Nitragin Co. is offering a special nitrogen cycle chart showing how nitrogen is made available to plants. It shows the importance of legume crops and seed inoculation, and the contribution of major legume crops in terms of pound of nitrogen per acre per year. For a copy of this informative chart,

CIRCLE 7 ON SERVICE CARD

8—INSECT CONTROL HANDBOOK

Full directions for a malathion insect control program for your fruit or vegetable crops are at your fingertips when you use the *Malathion Handbook for Insect Control*, published by American Cyanamid Company. Directions cover insect pests, rates, timing, residue tolerances, intervals between last application and harvest. To get your copy, simply

CIRCLE 8 ON SERVICE CARD

Crops & Soils

9—NOCULIZED SEED

The story of this top-quality alfalfa seed which has been vacuum-impregnated with selected strains of bacteria that stay effective for months has been presented in bulletin form by Noculized Seed. To learn more about this revolutionary new development,

CIRCLE 9 ON SERVICE CARD

New Products

(See page 48)

47—Automatic Haying

48—Plastic Farm Buildings

49—On the Level

50—I've Seen It

10—FACTS ON POTS

How growers across the United States use Jiffy-Pots is told in Technical Bulletin No. 10 from Jiffy-Pot Company of America. For more detailed information about culture techniques, crops, and varied uses,

CIRCLE 10 ON SERVICE CARD

Livestock & Poultry

11—PROCESSED FEED

Get feed the way the critters like it with W-W grain roller mill, now available with ear corn crusher attachment to process kernels, cobs, husks at same time. To learn more about W-W Grinder Corp.'s roller mill, just

CIRCLE 11 ON SERVICE CARD

12—POULTRY CHECKLIST

The breeding and research program of J. J. Warren is of interest to every poultryman. You'll want their checklist for maximum livability, layability, and efficiency. To learn how to put new life into your laying flock,

CIRCLE 12 ON SERVICE CARD

13—FOR TOP PRICES

Learn about the "break-out" method of grading eggs in the Heisdorf & Nelson Farms, Inc., bulletin, *Egg Quality*. If you want top market prices for your eggs, you'll want to learn more about the USDA "Fresh Fancy" and other top quality controlled programs. For your copy,

CIRCLE 13 ON SERVICE CARD

14—INCREASING PROFITS

American Dehydrators Association has prepared a handy bulletin with helpful hints on how to increase your livestock profits. You'll want to know more about Dehy pellets and their special growth promoting factors. For more information,

CIRCLE 14 ON SERVICE CARD

15—HEAVY BREED CAPONS

Electric Made Capon, published by Howard Beuoy and Son, will be of special interest to teachers, FFA and 4-H club members. To learn more about this method of removing glands from young roosters, just

CIRCLE 15 ON SERVICE CARD

16—FACTS ON ANIMAL HEALTH

Hess & Clark has recently published an informative booklet entitled *Animal Health Fact Book*. To learn how to keep your calves and baby pigs in top condition,

CIRCLE 16 ON SERVICE CARD

17—MAXIMUM PRODUCTION

Care and Feeding of Dairy Cattle includes information on how to have your cows produce maximum amounts of milk by consuming large quantities of an adequate ratio. To obtain more details about Kow-Kare, a high potency vitamin-mineral feed supplement and how it will help your cows,

CIRCLE 17 ON SERVICE CARD

18—DETAILS ON BREEDING

American Breeders Service tells you how to step up the production of your herd with the outstanding service of an ABS proved sire. For your free copy of *How American Breeders Service Can Improve Your Herd*,

CIRCLE 18 ON SERVICE CARD

19—CUT FEEDING COSTS

Pasture—How to Reduce Feed Costs presents many cost-cutting facts about hogs and other livestock. It tells how to improve pastures; how to manage them for the most forage; and recommended forage varieties for every section of the country. To get your free copy of this handy reference published by Keystone Steel & Wire Company,

CIRCLE 19 ON SERVICE CARD

20—PACKAGING NOTES

Kys-Padflats, the only octagonal cup designed that allows ample ventilation while individually cushioning each egg against shock, will help to reduce egg breakage. To learn more about Kys-Padflats, molded from strong wood pulp that will stand up under repeated use, and to receive a free copy of *10 ways You Can Cut Costly Egg Breakage*, just

CIRCLE 20 ON SERVICE CARD

COUNTY AGENT AND VO-AG TEACHER

Structures

21—REDWOOD BUILDINGS

California Redwood Association offers literature on *20 Ways to Use Redwood on the Farm*. For your free copy,
CIRCLE 21 ON SERVICE CARD

22—STEEL BUILDINGS

Information on factory-built steel buildings for almost all farm applications is available from United States Steel Corporation. If you are interested,
CIRCLE 22 ON SERVICE CARD

23—PANELIZED BUILDINGS

A booklet entitled *How to Fabricate and Erect Panelized Farm Buildings* is offered by West Coast Lumbermen's Association. If you would like a copy,
CIRCLE 23 ON SERVICE CARD

24—ARMCO STEEL BUILDINGS

Armco Drainage & Metal Products, Inc., offers buildings for every farm need—loose housing, machinery storage, grain storage, hog housing, or any other. For your copy of the Armco Farm Building catalog,
CIRCLE 24 ON SERVICE CARD

25—GREENHOUSE PLANS

Burley Burner Co., Inc., is offering free greenhouse plans. The company manufactures safe, low-cost plastic greenhouse heaters. For a copy of the plans,
CIRCLE 25 ON SERVICE CARD

Tractors & Equipment

26—STAINLESS STEEL EQUIPMENT

Walker Stainless Equipment Company, Inc., has announced a new brochure which outlines the organization's structure, facilities, and products. The company manufactures farm pickup tanks, transport tanks, and storage tanks, and designs and builds custom equipment. For a free copy of the brochure,
CIRCLE 26 ON SERVICE CARD

27—CHAIN SAWS

Seven new models of lightweight, easy-handling chain saws are now available from McCulloch Corporation. To learn more about these new chain saws,
CIRCLE 27 ON SERVICE CARD

28—REGULATIONS ON GRAIN STORAGE

A new booklet, *You . . . and On-The-Farm Grain Storage*, is being offered by Behlen Manufacturing Company. It's a simple, easy-to-understand review of ASC and CCC regulations on grain storage on the farm. For a copy,
CIRCLE 28 ON SERVICE CARD

29—"42" TRANSPLANTERS

Powell Manufacturing Company, Inc., presents its "42" basic unit transplanters in one or multiple-row lift types and one or two-row pull types, also with fertilizer equipment. For free literature,
CIRCLE 29 ON SERVICE CARD

30—AIRCROP SPRAYERS

John Bean Division of Food Machinery and Chemical Corporation is offering its line of Aircrop sprayers for every crop or size acreage. A free copy of their 1961 catalog will be sent to you when you
CIRCLE 30 ON SERVICE CARD

31—AIR SPRAYERS

A 24-page booklet is available from Bosler Corporation on the latest techniques in air carrier spraying. For a free copy,
CIRCLE 31 ON SERVICE CARD

32—SOIL SHREDDER

Lindig Soil Shredders give efficient, low-cost power shredding. Optional gas or electric power units. For complete details,
CIRCLE 32 ON SERVICE CARD

33—MECHANICAL TRANSPLANTER

This transplanter comes in tractor-mounted or drawn models. There is also a peat pot planter now available from Mechanical Transplanter Co. To get further details,
CIRCLE 33 ON SERVICE CARD

34—CRAWLER TRENCHER

Charles Machine Works, Inc., has introduced a new crawler-mounted Ditch Witch trencher series. If you are interested in additional information,
CIRCLE 34 ON SERVICE CARD

35—ROTARY TILLER

A new rotary tiller built for heavy service is being offered by Oregon Mfg. Co. The unit has rotor blades of high alloy steel which are hard faced with borium. If you are interested,
CIRCLE 35 ON SERVICE CARD

36—NEW SPRAYERS

A catalog of a new line of dusters and sprayers is available from D. B. Smith and Co. One new piece of equipment is a lightweight sprayer the company calls "rite-size." A copy of the catalog will be sent to you if you
CIRCLE 36 ON SERVICE CARD

Miscellaneous

37—COLOR METALCRAFTING

Make beautiful trays and coasters from aluminum colorcircles or mirror-finish aluminum. Introduce your groups to color metalcrafting. To obtain free literature and instructions from Crafts Metals Corporation, just
CIRCLE 37 ON SERVICE CARD

38—LINE-O-HEAT

That's the name of heating tape to be used to prevent freezing of pipes, pumps, etc., in coldest weather. For free literature from Smith-Gates Corp.,
CIRCLE 38 ON SERVICE CARD

39—PROTECT YOUR LUMBER

How to Protect Lumber with Waterproof Paper for Shipment and Storage is the title of American Sisalcraft Corp.'s free booklet which it has recently released. A free copy is yours if you
CIRCLE 39 ON SERVICE CARD

40—FEEDING SYSTEMS

A 36-page booklet of feedlot plans, requirements, and mechanical feeding systems is available from A. O. Smith Corporation, Harvestore Products Division. For a copy of *Planning for Profit with Harvestore Mechanized Feeding Systems*,
CIRCLE 40 ON SERVICE CARD

41—FACTS ON NAILS

The Deniston Company, manufacturers of Lead-Seal metal roofing nails, would like to send you their descriptive literature. Their nails are made with a special lead process which forms a double seal. If you would like more information,
CIRCLE 41 ON SERVICE CARD

42—FARM TRANSPORTATION

American Trucking Association is offering *The New American Frontier*, an educational, picture style book describing the role of transportation in the history, growth and economy of the United States—and its increasing place in the nation's future. For a copy,
CIRCLE 42 ON SERVICE CARD

43—MAKE YOUR OWN SADDLE

A 100-page catalog of saddle kits is available from Tandy Leather Co. Parts for the saddles are all pre-cut, the seat is 15", double-rigged, Cheyenne roll, full size fenders. A catalog will be sent to you if you
CIRCLE 43 ON SERVICE CARD

44—BETTER FARM LIVING

Better Living on the Farm is the title of a pamphlet published by Sinclair Refining Co. If you would like to receive a copy, just
CIRCLE 44 ON SERVICE CARD

45—POISON IVY POSTER

An 11" x 14" poster describing poison oak, ivy and sumac is being offered by Ivy Corp., manufacturers of Ivy-Dry, a new product for treatment of the rash. Miniatures of the poster are also available for distribution in the classroom and elsewhere. For a poster and miniatures,
CIRCLE 45 ON SERVICE CARD

46—VEGETABLES, OLD AND NEW

A descriptive catalog of all vegetable varieties that are of commercial importance in the eastern part of the United States has been published by Corneli Seed Company. Descriptions and data are based on trial ground and general observations and opinions. A copy of this informative catalog will be sent to you when you
CIRCLE 46 ON SERVICE CARD

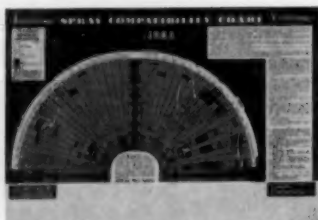
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1961

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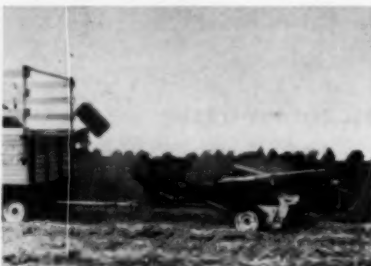
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new ideas and products

47—AUTOMATIC HAYING

How to cut labor costs is the big topic on all farms today. The employment of labor-saving machines is a "must" for the profit-minded farmer.

A new hay baler incorporates these thoughts in its design. The new machine is a compact baler and it easily handles 12 x 16-inch bales. This feature naturally makes it attractive to many farmers. The machine is equipped with a Tele-Flow feeding system so that it handles hay gently, with no auger to strip off valuable leaves. The new "Compact



65" has the same sure-tying knotters as the bigger New Holland hayliners.

The "Compact 65" is now in New Holland dealers' hands and you'll want all of the facts. Just **circle 47** on service cards or write H. Joseph Hull, Jr., New Holland Machine Co., New Holland, Pa.

48—PLASTIC FARM BUILDINGS

Over in Olivia, Minn., two hog houses have just been completed using plastic foam core building panels. The panels are surfaced with either plywood or fibreboard and give the farmer greater flexibility.

Although lightweight, these panels are rigid and sturdy and provide excellent insulation as well as serving as a vapor barrier. Plastic foam buildings are cool in the summer and warm in the winter.



Be sure to acquaint yourself with this new building concept by **circling 48** on service cards or writing Paul Cornyn, Plastics Division, Koppers Company, Koppers Bldg., Pittsburgh 19, Pa.

49—ON THE LEVEL

We are hearing more and more about land leveling because of its importance on irrigated farms and for land forming in the humid areas to correct surface drainage problems.

About a month ago, I saw a new tractor-mounted land leveler designed



to fit all tractors which did a remarkable job. For the first time, the small farmer can use a leveler successfully. The front tractor tires and rear leveler wheels determine the grade and an exclusive mechanism holds the cutting blade on this plane by offsetting the effect of vertical travel of the tractor rear wheels.

You'll want to know more about this piece of equipment. Just **circle 49** on service cards or write J. M. Borden, Eversman Manufacturing Company, 1145 5th St., Denver 4, Colo.

50—I'VE SEEN IT

At the Michigan horticulture show last month I saw a new manure spreader which answers the problems of farmers



all over the country. The spreader handles frozen or sloppy manure without build-up even in sub-zero weather.

Free-swinging steel flails mounted on a single rotating shaft finely shred manure and spread it in a uniform band 80 to 90 inches wide. The covered, undershot action cylinder discharges manure low where wind can't carry it. The new machine is the biggest advance in spreaders during the last 20 years.

You'll want all the details, so **circle 50** on service cards or write A. R. Bowlzer, New Idea Farm Equipment Co., Coldwater, Ohio.

COUNTY AGENT AND VO-AG TEACHER

Beginning the ninth year of

audio- visual quiz



George F. Johnson

"Laundry list" visuals—A list of words or statements on a chalkboard, flannel-board, flip chart or pad used as a visual aid, is now aptly termed a "laundry list" visual.

This type of visual came in for a lot of criticism at a recent meeting of the National Audiovisual Presentation Association in New York, according to Duane Nelson, USDA visual specialist.

Commercial, industrial, and educational people admitted that too often the "laundry list" was used. The panel members of a convention seminar agreed that the "laundry list" was a lazy visual and in most cases, it wasn't a lack of funds or time that caused the use of a "laundry list," but rather the lack of imagination, indifferent attitude, or the presenter was not sold on the value of good visuals, Duane reports.

Extension cords—With the needs these days for power outlets for slide and movie projectors, tape recorder, voice amplification, and perhaps a work light or lighted lectern, the floor of our bigger meetings becomes a mass, if not a mess, of cords reaching to four or five different outlets.

Some illustrated lecturers have solved the problem by building a box containing a number of power outlets into which all audio-visual equipment at the meeting can be plugged. With this box handy to the equipment, only one cord need cross the floor to a power outlet. Be sure, of course, that the line is fused heavy enough to carry the load.

PROMOTE YOUR PUBLICATIONS AT MEETINGS, DEMONSTRATIONS



A portable display used by Lackawanna County, Pa., Agricultural Extension personnel is made of painted pegboard with copies of publications hung on removable hooks. The publications can easily be removed for closer inspection.

Magnetic vs. Flannelboard

"What are the advantages of the magnetic board over the flannelboard? I have just returned from one of the southern states where these boards were used extensively in a training school. P.M.S., county agent, Pennsylvania.

One of the advantages is that objects of some weight and size can be placed on the board. Flatness of the object is not necessary. Magnets can be purchased to glue on the back of visuals so they hold firmly to the metal board. Likewise, magnets can be secured to mount on plastic grips for use over paper visuals.

Another advantage lies in the versatility of the magnetic board itself. For example, a magnetic chalkboard consisting of a green writing surface on a reinforced steel panel, is available. This enables the teacher to diagram with chalk a situation such as a crossroads and then use miniature automobiles (small magnets inside) on the board to illustrate traffic problems, safety, etc.

Another combination is the 48" x 30" folding magnetic, chalk, and display board. This is actually a four-way deal: 1) It is a chalk-board; 2) It serves as a magnetic board with or without chalk-board use; 3) It is a display or bulletin board; and 4) By using the magnetic plastic grips over a paper pad, the board serves very well for the white paper pad and black crayon work.

Cost of operating a magnetic board may run higher than a flannelboard due to the need for a supply of magnets. Best of these will cost from \$4 to \$6 a dozen. Best boards available commercially will cost from \$38 to \$56, depending on size and facilities desired. They can be home-made.

KODAK CONTEST DEADLINE

High school students can enter their favorite pictures in the 1961 Kodak High School Photo Awards up to midnight of March 31. Awards is open to students in grades 9 through 12 who are in daily attendance at any high school in the United States or its territorial possessions. Topping the list of prizes totaling \$11,750 are those of \$400 and \$300 in the black-and-white division, and \$350 in the Color Section.

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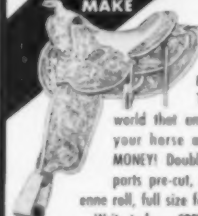
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in summing up

NVATA—ready for long pants?

Mr. C. B. Davenport
314 Garden Street
Mt. Holly, New Jersey

Dear "Davey":

February, 1961 is an important month for vo-ag teachers. After talking to you the other day I got to thinking that there are going to be a lot of disappointed readers this month.

For 16 years now they've been reading your "Vo-Ag Notes From the Field," which was concluded with the December 1960 issue. Perhaps, I thought, you should have written one more page...

Of course, it isn't easy to say goodbye. And I know you don't go in for a lot of "sentimental hoopla."

Now the other development I'd like to discuss is one that you helped to bring about. It looks like, at long last, the National Vocational Agriculture Teachers Association will have a full-time executive secretary. The deadline for applications is February 1.

Thus, it's appropriate that this editorial be dedicated to you and the NVATA, as we mark the end of an era—and the beginning of a new one, designed to make new friends for Vo-Ag.

Someone told me once that the biggest step a man takes is the one he takes into retirement. I couldn't help but think of that the night I "helped" you take that step. It was almost two years ago—April 22, 1959.

It was really an honor being asked to speak at your Testimonial Dinner, which was tendered to you "in commemoration of your 38 years of service to vocational agriculture in New Jersey."

I was mighty happy, too, when you indicated your desire to continue writing the page that is practically as old as the magazine itself. Now about NVATA...

No executive secretary can do the whole job of public relations. Making friends and telling the Vo-Ag Story is every teacher's job.

Here is where I feel we can "collaborate," Davey, to bring NVATA members and other ag leaders a real message! If there was one thing that really stood out in your lifetime of service to agriculture it was your knack of getting along with people. To you, every friend counted, no matter who he was.

Some ag teachers may think that things are "rough" these days, trying to persuade their communities to lend more support to vocational agriculture.

But in 1921—three years after the Smith-Hughes Act was signed... eight years after the first income tax act was passed... *one year after I was born!*—you were working to get a foothold for Vo-Ag in your community. The problem wasn't to *teach* it then, but to get it accepted.

Farmers, in many cases, didn't want education—even worse, they didn't even want to hear about it.

Like you would say, a teacher really had to have a "tough hide" in those days.

I think the column I liked best was the one you wrote in July 1955—the same month "Doc" Spanton and I were engaged in a little editorial controversy on related occupations (now referred to as agribusiness). Here are several paragraphs of that column:

"When I first started to teach, some wise person gave me some fine advice which I believe all teachers should remember, particularly those just starting in the profession.

"Maybe he put it rather crudely, but nevertheless it was and still is rather sound advice. Said he: 'You will want to make a good impression on your superiors in the school system, but don't forget that you have to get on the right side of the janitor if you want to get along well.'"

"Having worked with two of these gentlemen in my experience and having gotten along rather well with each of them, I can testify to the many ways in which they can make life more pleasant for you and to the many favors they can do for you, if they happen to like you.

"This may seem to be just a problem of your ability to 'get along' with people in general, but I can assure all starting teachers that that very important gentleman, the janitor or the custodian, is a very special person to have on your side.

"A teacher in the mid-west once told me that he had to send his part-time class home at a given time, because the janitor turned off the heat at that time. Warning: don't let this happen to you because you failed to have the gentleman on your side."

You've written down-to-earth messages for the over-zealous and the lazy... for the rugged individualist and the security-minded.

Now lest someone gets the idea I'm going to get sentimental about all this, I'll just say "I guess that about sums up my feelings."

Good luck to the NVATA with the beginning of a new era of public relations in Vo-Ag!


Editor



**"This is how we help them remember more
of what they see and hear in a movie."**

Says Lawrence Root,
Principal at the new Brighton District No. 1 Council Rock Elementary School, Rochester, New York, selected by A.A.S.A. for its exhibit of outstanding school designs:

"We take the view that most educational films have been prepared professionally, and as such can communicate subject matter worth learning.

"All that remains is for the children to open their minds to concentrate on and receive the message. Gaining their concentration is, we feel, a matter of shutting out distraction.

"Many of our movies, therefore, are shown in the quiet isolation of the auditorium, using a Kodak Pageant Projector. We selected our Pageant on the basis of its quietness, picture brilliance, and clarity of its sound. Its consistent performance helps keep young minds from wandering.

"Our reward is evidenced in the picture above. Good attentiveness, and — later — good recall of what they saw and heard."

The picture above was taken using only that light reflecting from the screen while a movie was in progress. The projector that throws such a brilliant easy-to-see image on the screen is a Kodak Pageant Sound Projector, with its special Kodak Super 40 Shutter. With this shutter, the Kodak Pageant actually projects 40% more light onto the screen than projectors with ordinary shutters.

Your Kodak A-V dealer will demonstrate at your convenience, or write for Pageant Bulletin V3-22. No obligation.

Kodak Pageant Projector

EASTMAN KODAK COMPANY, Dept. 8-V, Rochester 4, N. Y.



PURINA SALUTES

"FARMERS OF TOMORROW"



Danforth Farm Youth Center is devoted exclusively to research to help youths with their livestock projects.

R. J. LANG operates a 500-acre farm near Wheelersburg, Ohio, on which he has a high-producing Holstein herd of 75 cows, raises 140,000 pounds of broilers a year and does extensive truck gardening.



"Farmers of Tomorrow' will find inspiration at Danforth Farm Youth Center"

*—says R. J. Lang, Wheelersburg, Ohio
500,000th Purina Research
Farm Visitor*

"Thousands of tomorrow's farmers will be more successful," comments Mr. Lang, "because of the instruction and inspiration that today's farm youths get when they visit the Purina Research Farm and the Danforth Farm Youth Center."

"The Youth Center is different from the rest of the Research Farm Units in its objectives. While other units are devoted to helping get better results for practical farming, the Youth Center is devoted to research that helps boys and girls raise animals with prize-winning bloom. Also available there are classes in hogs, beef cattle, lambs and dairy heifers, for those who wish to have their groups do practice judging."



EARL A. SINDECUSE, Purina's Director of 4-H and Vocational Agriculture Service, is the official host to Purina Research Farm visitors. A

graduate of Michigan State University and a former Vocational Agriculture Teacher, he has a deep interest in the progress of young people. Mr. Sindecuse has served youth with the YMCA, Boy Scouts and Junior Achievement. He coordinates Ralston Purina Company's Summer Fellowship and Scholarship Programs for Home Economics and Agricultural students and he is nationally known for his work with County Agents and Vocational Agriculture Instructors. He has been honored by many youth groups.

Danforth Farm Youth Center, on the Purina Research Farm, Gray Summit, Missouri, is a memorial to William H. Danforth, founder of Ralston Purina Company.

Agricultural Leaders can arrange to visit the Purina Research Farm with their groups by contacting the nearest Purina Dealer or Purina Salesman . . . or by writing Earl A. Sindecuse, Director of 4-H and Vocational Agriculture Service, Ralston Purina Company, Checkerboard Square, St. Louis 2, Missouri. If it should be necessary to stay overnight, special rates can be obtained at a St. Louis hotel.

BUILD YOUR CHAMPION THE PURINA WAY

